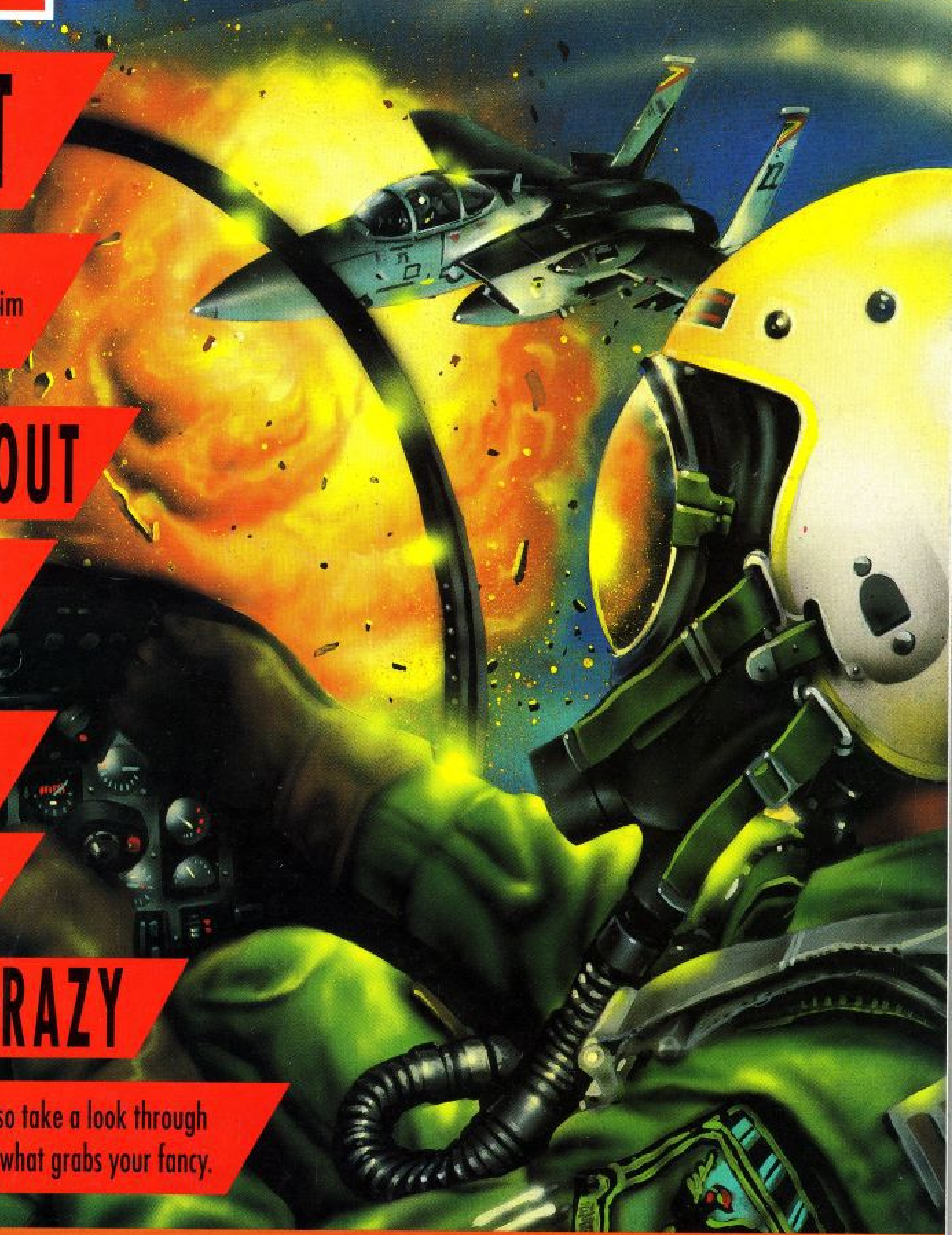
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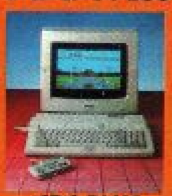
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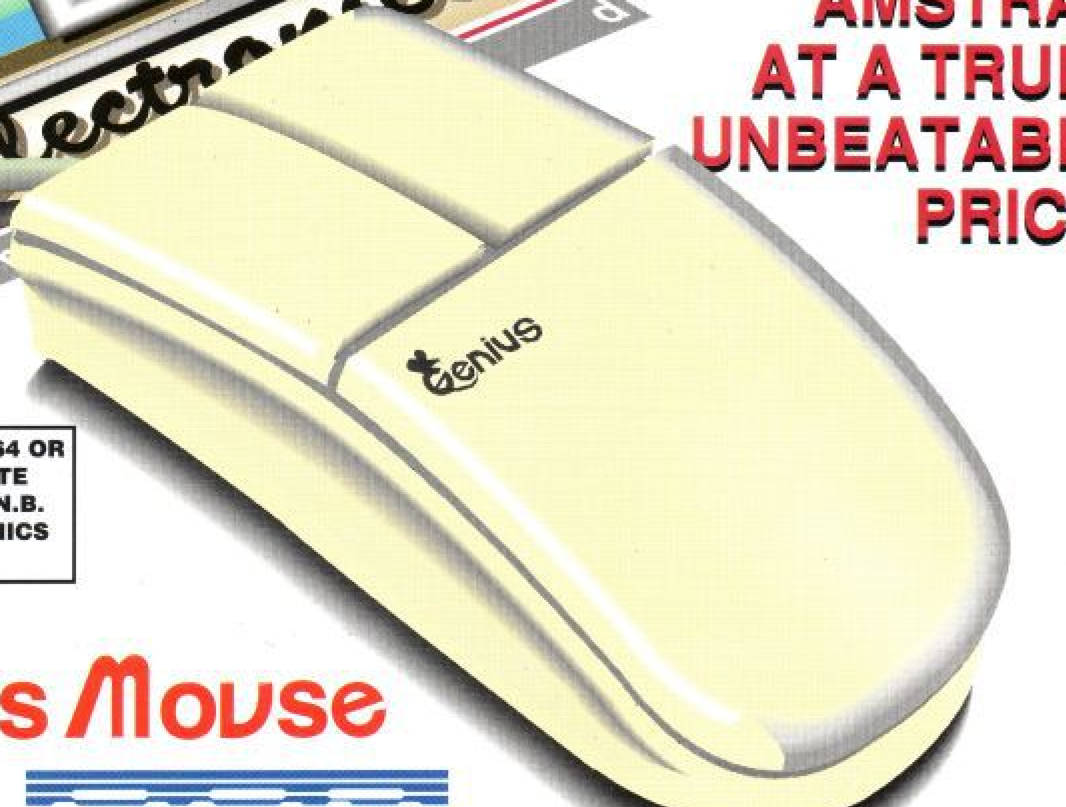




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BrunWord

ROM Module £125

The BrunWord ROM Module is a compact unit which plugs directly onto the expansion socket of the CPC6128 or 6128 Plus. It overcomes the memory limitations of the CPC computer by incorporating the entire BrunWord Elite system into one very high capacity ROM (256K bytes). The module measures three inches wide, half an inch thick and extends just two and a half inches behind the computer.

On the ROM we have BrunWord Elite, Headline, 10 Headline fonts (including 'Chelmer' and 'Clacton'), 8 fonts for downloading to a 24 pin printer, BrunSpell, 30,000 word dictionary and Info-Script. Second disc drives owners can have KDS ROMDOS added (not 6128 plus) for £15 extra, and remember that no ROM box is needed.

Great Power

Plug on the module, switch ON the computer, type |BW and the whole BrunWord Elite system is in the computer ready for immediate use. You can type into the word processor, check the spelling, print it out, use the database to print labels or search for and transfer data to the word processor, print using headline fonts and 24 pin fonts, all without a single disc operation, except maybe to load data into Info-script. Any BrunWord Elite facility can be used without upsetting other data. You can even view screen dumps stored on disc, or format a 3 inch or 3.5 inch disc, without disturbing the text in BrunWord or the data in Info-Script.

Printing Pictures

The BrunWord ROM module has a host of new features including five high quality, high speed screen dump routines for 9 pin and 24 pin printers. These are special routines using the BrunWord Elite 8 bit printer status port and they print incredibly fast compared to desk top publishers. This entire page *including* the drawing, the large 'BrunWord', the address, credit card symbols and Teddy, was printed using the BrunWord ROM module and a wide carriage 24 pin printer *in one printing operation.*

Relative Reverse

For printers with reverse (Amstrad DMP2160, Star LC10 etc), there are now three reference points. The top of the page, the current print head position and any point previously defined within the text. The print head can be moved to a relative position above or below any of these references. This refinement coupled, with the new ability to control the box reverse, make complex layouts much easier to design and give faster, more efficient printouts.

Small and Light

The BrunWord ROM Module has been made as small and light as possible. When mounted directly onto the computer it is very very reliable. You are likely to damage the keyboard if you jolt it hard enough to give problems. (Other ROM systems use an unwieldy ROM box which can 'crash' with even the slightest knock).

Very Serious

The BrunWord ROM Module is perfect for the basic machine, you need no other add ons. However, anyone who has two disc drives knows the frustration of inserting a disc, asking to load a file and being told that the other drive has no disc in it. You simply forgot to inform the computer to change over drives. You know there's no disc in the other drive, the computer now knows, so what's the problem? The software doesn't test *both* drives!!! That's now a thing of the past. The BrunWord ROM Module will load from whichever drive has the disc in it. It's simple and it's brilliant, and if your second drive is a 3.5 inch, you can use the fast file system which loads a 64K file into Info-Script in 7 seconds or (with extra memory) a 256K file in 16 seconds.

Quote

"It's totally brilliant..... carries on the extreme user friendliness of Brunning products to a very high standard.... I have one of these little gems plugged into the back of my CPC right now. As you can imagine, anything that passes through the ACU office can expect to come in for a hard time and, I can safely say that to date, the BrunWord ROM has performed in an exemplary fashion on all fronts."
Chris Knight (ACU Editor) - ACU August 1991.

BrunWord 6128 £30

Complete word processing package (disc) with word processor, spelling checker and card filing programme. BrunWord 6128 out performs all other word processors for the CPC6128. It's high speed screen routine, gives it a very fast response and the editor features are logically arranged to be easy to learn. The spelling checker, with its dictionary, load into memory at the same time as the word processor, making access very convenient and exceptionally fast. It is supplied with a 40 page manual and a tutor file.

Info-Script £50

Complete data processing package (disc), including all the features of BrunWord 6128 and BrunSpell. The word processor and database can be resident together giving the speed and convenience of access with no disc delays.

9 Pin Elite £55

The Elite system for 9 pin printers (on disc) consists of BrunWord Elite, BrunSpell, Headline, 8 bit printer status port and 7 'type setting' fonts (fonts are 24 pin in size but for 9 pin printers). Total price £55 inclusive.

9 Pin Elite+Info £92

The Elite system (on disc) as above but including Info-Script and a backup disc. Total price £92 inclusive.

24 Pin Elite+Info £90

BrunWord Elite (on disc), BrunSpell, Info-Script, back up disc, 8 bit status port and 7 'type setting' fonts for downloading to a 24 pin printer. Total price £90 inclusive.

References

ACU	SEP	1990	Page 58/59	- Encryption.
ACU	OCT	1990	Page 56/57	- Headline.
ACU	DEC	1990	Page 24/25	- Info-Script.
AA	FEB	1991	Page 18	- BrunWord 6128
ACU	MAY	1991	Page 42/43	- BrunWord Elite.
ACU	JUN	1991	Page 60/61	- Elite Font Editor.
ACU	AUG	1991	Page 20/21	- BrunWord ROM Module.



'William Taylor'

This delightful line drawing by Chris Rothero is one of the illustrations in 'Strawberry Fair', a book of traditional songs and easy piano music, published by A & C Black Ltd. It was Dart Scanned into four 'screens' by agreement.

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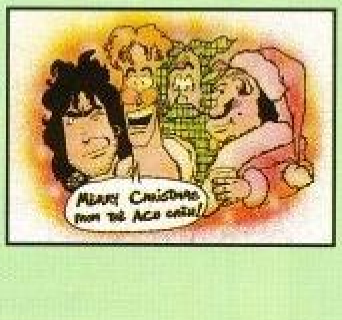
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REGULARS

FEATURES



PEDAL POWER



If you want to get ahead this Christmas, start using your feet. That's the advice from Spectravideo following news of their latest release, the refreshingly different Foot Pedal Controller.

Designed to enhance conventional joysticks, Quickjoy's new product consists of three pedals, which can be pressed by the foot much the same as the floor controls in a car. The pedals can be programmed to replace any three of the five functions of a conventional joystick, and the system should prove a real hit with racing and flight sims.

Just like the real thing, you can now steer with the hands and control acceleration etc. with the feet, enabling you to put your foot down for real and get you breaking high scores all over the place.

The excellent Foot Pedal Controller should be available at most computer shops now at just £24.99. So, if you fancy a little burning rubber, go looking for it now.

GET CLUBBING

Chic Computer Club, the club that claims to cover more users than duvets, has just announced some excellent new special interest groups, providing news, information, reviews and advice specifically for your machine.

The new services cover Speccies, 16-bit machines and PCs but, never fear, this does not mean any less coverage for us Arnold freaks in the original and best 8T2 section.

If anyone would like more info about specific sections, or a full introductory pack, just send a SSAE to Chic Computer Club at PO Box 121, Gerrards Cross, Bucks LS9 9JP.

In the meantime, keep reading for more news on specific interest groups. Well done Chic.



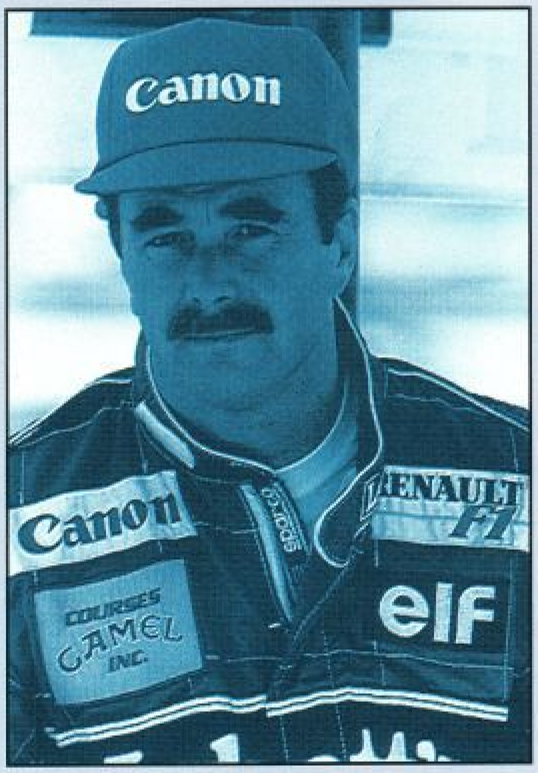
FESTIVE MADNESS

Want to add an extra BYTE to your computer? Or should we say BITE as the all-new Critters come to town. Designed to fit around any home computer monitor, these high quality furry Critters should make an excellent gift for the Arnold user who has everything – or thinks he/she does.

At just £24.99 plus £2 p&p, the full range includes Teddy Bear (brown), Grinning Dragon (green), Bunny Rabbit (pink) and the British Bulldog (grey).

There's a colour to brighten up any office or bedroom, so send off for one now for a little extra Christmas fun to. Crittercal Computers Ltd., PO Box 300A, Surbiton, Surrey KT6 5YA.

NEXT TIME NIGEL



Poor old Nige. There he was, all set to take the Formula One Championship and then everything went wrong. Oh well, there's always next year.

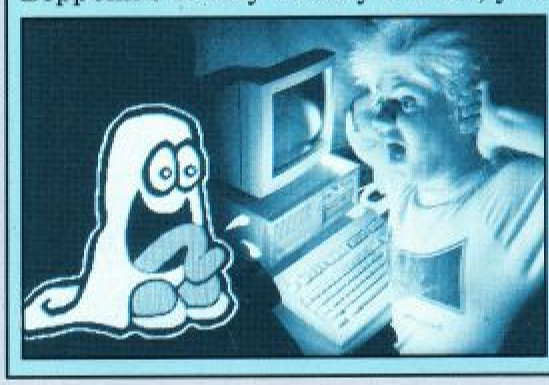
Speaking of which, how do you fancy being a Formula One driver yourself? Well, if you do, then you'd better keep your nose to the ground and start looking out for the release of Gremlin's latest baby.

Based upon Nigel Mansell's exploits in the cockpit, the rights to which have already been secured, Gremlin's little blast looks like being released early next year and is promised to be an absolute belter.

Following on from Gremlin's superb Lotus and Toyota series, the quality should be guaranteed and, after spending a fair few months in the development room, you can be sure it will be well worth getting hold of. Keep reading these pages for the latest news.

UNSINKABLE TITANIC

Following on from the success story of Zeppelin's Blinky's Scary School, you are all now humbly invited to join Blinky himself aboard the Titanic, in what looks to be another thumping good blast.



Spooks abound aboard the ill-fated ship, all tied in with the mysterious kidnapping of the famous paranormal Professor Frobisher Goonhilly.

The finger of suspicion points at eccentric millionaire Arther J. Hackensack, while Captain Rory Appleseed tries desperately to restore order to his ship and crew.

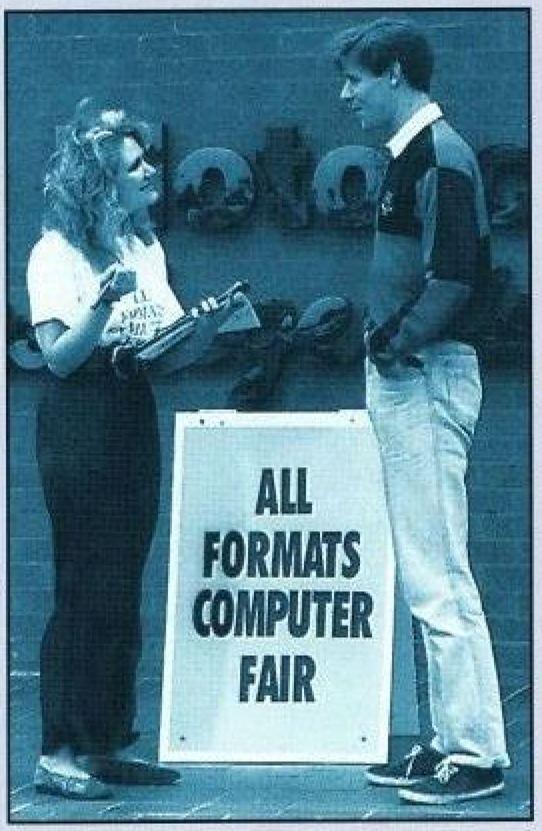
Dare you take this spooky offering on? You'd be silly not to at just £3.99. Watch this space for developments on Blinky's latest outing.

FAIR SURVEY

A recent survey undertaken at the All Formats Computer Fairs has revealed some truly remarkable and diverse facts. For example, did you know that 73% of visitors to the Midlands Fair were regular games players? Or that 53% use a PC regularly? did you also know that 47% own an ST or Amiga, the same percentage as own 8-bit computers, while only 18% own a games console?

You didn't? Well you do now and it just goes to show that the Fair certainly attracts computer freaks from all fronts.

December 14 sees it at the Royal Horticultural Halls in Westminster, London, while it's up North for December 15, at the University Sports Centre, Leeds. Admission is still only £4, so get down there and enjoy yourself.



PRICEBUSTERS

Yet again, those awfully nice people at Star Micronics have announced Pre-Christmas savings to astound the tightest of scrooges. Aimed specifically at the 24-pin Business Series models, you can now pick up the LC24-10 for a saving of £10 at £249, the LC24-200 and colour version are down £20 each at £299 and £349 respectively and the wide carriage LC24-15 is down a staggering £100 at just £399.

Not bad for starters, what? With the entry level LC-20 at just £199, Star now has a fairly comprehensive range of goodies to suit most needs. If you want to know which one will suit you best, then give them a ring on 0494 471111.

If your old printer has given up, you know where to look.

THE SHOW GOES ON

By all accounts, this year's pre-Christmas Computer Shopper Show looks set to be an absolute stonker, guaranteed to bring you all the best from the world of home computing, along with a host of other surprises as well.

This year, the show's organisers, Blenheim Pel, have linked up with Capital Radio's Share a Capital Christmas Appeal, which provides toys and food to underprivileged families over the festive season.

So, if you're going to the show between December 5 and 8, don't forget to bring along a gift for the appeal. If you do, you'll get a raffle ticket in return which could win you a fantastic flight in Capital FM's Flying Eye traffic monitoring plane. Excellent idea!

Also booked for the Pre-Christmas festivities, is the prolific French Gastronaut, Mange Tous, renowned for devouring bikes and planes the world over. At the show, Mr Tous is set to polish off a whole computer over the four days, so don't miss out on this culinary delight.

Featuring a host of excellent services, including cheap home delivery of bulky goods, the Computer Shopper Show is a must for all computer owners and, using the special voucher in ACU, you can also get in cheap!

Chop it out and take it with you when you go down to the Wembley Exhibition Centre to get your discount, and don't forget to have a superb day out at the show.







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ST TOUR - *Tutorial*	£4.99

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The TenStar Games Pack is THE software compendium for Atari ST owners, featuring ten top titles with a variety of different types of games for you to enjoy. Each title is packaged in its own plastic case, with a colour sleeve and full instructions. The TenStar Games Pack is FREE! when you buy your ST from Silica Systems.

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Live & Let Die - *By Elite*	£19.99
Onslaught - *By Hewson*	£19.99
Pipe Mania - *By Empire Software*	£24.99
Rick Dangerous - *By Firebird*	£24.99
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Trivial Pursuit - *By Domark*	£19.95

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1st Word - *Word Processor*	£59.99
Spell It! - *Spell Checker*	£19.99
ST Basic - *Programming Language*	£24.99
TOTAL RRP:	£324.75

FREE! WORTH NEARLY: **£325**

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Every Atari ST from Silica comes with a FREE Silica ST Productivity Pack, worth over £100. This pack has been specially put together by Silica to help you to get to grips with the productive side of computing from day one. Each title has been tried and tested by tens of thousands of Atari ST owners, who have begun word processing with 1st Word and programming with Atari ST Basic.



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ST BASIC - with tutorial	£24.99
TOTAL RRP:	£104.97

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Before you decide when to buy your new Atari ST computer, we suggest you think very carefully about WHERE you buy it. Consider what it will be like a few months after buying your ST, when you may require additional peripherals or software, or help and advice with your new purchase. And, will the company you buy from contact you with details of new products? At Silica Systems, we ensure that you will have nothing to worry about. We have been established for over 12 years and, with our unrivalled experience and expertise, we can now claim to meet our customers requirements with an understanding which is second to none. But don't just take our word for it. Complete and return the coupon now for our latest Free literature and begin to experience the "Silica Systems Service".

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Mr/Mrs/Ms: .... Initials: .... Surname: ....

Address: ....

....

....

Postcode: .... Tel: ....

Which computer(s), if any, do you own? ....

E&OE - Advertised prices and specifications may change - please return the coupon for the latest information.

ZIGGY'S MAILBOX

BLACKOUT

Please help me, as I am about to throw my new CPC out of my bedroom window unless somebody can get the damned thing working!

I bought the 6128 only three weeks ago but, having spent the first few days playing some of the games that I had already bought, it now seems to have given up the ghost.

No matter what I do, all I get is a blank screen. I've tried switching everything off and on and playing with the wires, but nothing seems to work. Is there anything I can do to get my CPC back into the world of the living, or will I have to fork out vast sums of money to revive it?

As you can imagine, I am very disappointed and don't know where to turn. If you can help, I would be more than grateful.

Stephen Russell, Havant, Hampshire

Ziggy: Oh dear, you do have a problem, don't you? From your letter, I must assume that you bought your machine secondhand, otherwise you would have whipped it back to the shop by now. Furthermore, you didn't really make it clear whether you had a Plus machine or not. If you do, don't forget that the Burnin' Rubber cartridge must be inserted and switched in at all times before you can get anywhere.

If it isn't, have you switched on your 6128 at the back of the keyboard as well? If everything is switched on and the cables are correctly connected, I can only assume that either you have a problem with one of the cables, or the monitor itself is on the blink.

If this is the case then, yes, you may well have to fork out a little cash to rectify the situation. Your best bet would be to contact the National Repair Centre in Peterborough for a quick consultation. The number is 0733 391234 and a single low cost charge is made for all repairs to your computer. I believe that the sum of around £57 is payable for a 6128, although that may vary if your problem is particularly major.

Who knows, it could be something as simple as changing a cable? Ring first and see what they thnk. Good luck.

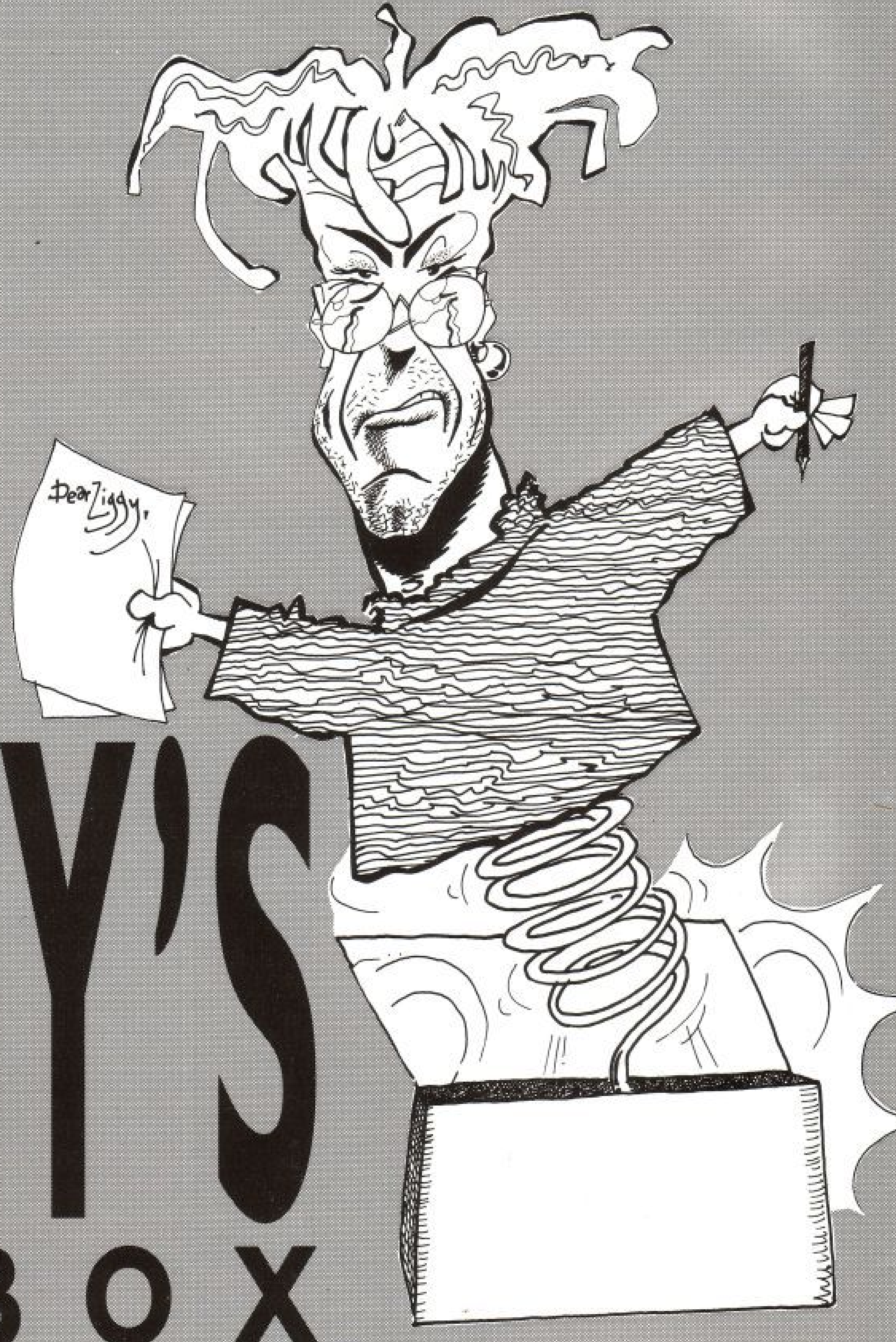
LOADING UP

I am in need of your help. I am trying to get or program a loading screen for one of the games that I'm doing on the 464.

However, looking in my book, it has no information for me, so I am turning to you and asking for help. Please help me, as I am getting very angry trying to sort it out for myself

Nigel Turner-Howe, 24 Belfield Road, Foxhole Road, Paignton, South Devon TQ3 3UZ

Ziggy: On the subject of loading screens, there have been a fair few featured in our very own 10-liners section in the past. However, there are a glut of alternatives that you should be able to pick up from the



public domain sector. Why not take a look through the list of addresses on the PD Scene pages and send off for some catalogues to see what exactly is available, and which will best suit your needs.

Alternatively, are there any helpful readers out there who have designed their own loading screens? If so, why not drop Nigel a line and offer him some sound advice?

GOOD BOOKS

I have an Amstrad 6128 and a DMP2000 printer. I know nothing whatsoever about modems and bulletin boards etc., but I would like to get the necessary gear and have a go when I return to England next year.

Can you please advise me on how to go about this? Is there a good book on the subject? What equipment do I need? Any help will be appreciated.

Peter Shafe, Altea, Spain

Ziggy: It's always a little problematic prescribing modem and bulletin board equipment if you don't know exactly what your requirements are going to be. As for modems, there are a multitude of products on offer, varying greatly in speeds and prices. For starters, you could try ringing Miracom on 0753 811180 and asking for a brochure on their full range of modems. This should fill you in on what kind of model you need for your own requirements. Secondly, do you intend to run the board off your CPC? If so, then following our forthcoming articles on CPC software for bulletin boards should help you out, as will our ongoing Comms features. In the meantime, if you fancy writing to me again, outlining your plans in more detail, I should be able to give you a better idea of what you need.

ANOTHER COP-OUT?

I have had my CPC 6128 for about three years now, but it is actually the third computer that I have owned, the first being the ZX81, closely followed by the Dragon 64.

I have been informed lately that the CPC range of computers are no longer in production. If this is the case, how long will it be before my back-up service and, indeed, your magazine, ceases to exist?

This has happened to both my previous machines and, if it happens again, I will certainly not be overjoyed.

P. Morris, Oldham, Lancs.

Ziggy: Sorry to hear of your previous plights Mr/Mrs Morris (you didn't say) but, I can assure you that the CPC range, for the time being at least, is indeed still in production and very much reduced to boot. It will remain so as long as people like yourself continue to support it.

By the same token, we at ACU have no plans whatsoever to leave you Arnold fans in the lurch so that, as long as you continue to buy the mag, we'll continue to produce it. This letter seems to have a familiar ring about it somehow but then, if we believed even half of the rumours that fly about concerning the CPC, we'd have all packed up out suitcases and gone home a long time ago. 'Nuff said?

BACK AGAIN

I recently bought a copy of ACU after a long absence. It was an impulse buy, seeing it on the shelf, which in itself was unusual and, to be honest, at first I I kicked myself, when I remembered that it used to come with the Amstrad User Group membership

I had let my membership lapse several years ago, and this had been partly because the magazine changed format and seemed to get into a rut.

However, I was recently interested to see that the quality of the articles seems to have become much better and are pitched at a sensible level of knowledge, without being patronizing or OTT. Also, there seem to be none of the snide remarks that a certain weekly magazine seems to indulge in.

I was especially interested in the CP/M+ articles, by John Hudson and I should be very interested to obtain copies of the back issues to include the earlier articles in the series. Is this possible? There is no mention of availability of back issues in the magazine as far as I could find.

Dr Clare Jenkins, Newton, Powys.

Ziggy: Thanks for the kind words Dr Jenkins, snide remarks are certainly something we feel strongly about, preferring to leave them to others if they wish to publish them. As for the mag, we are continually striving to maintain a careful balance between games and serious computing and hope, thereby, to keep the multitude of different interest bases as happy as possible.

Concerning back issues, as mentioned in a separate letter, all issues from March 1991 onwards can be obtained at the address and for the price stated below. You haven't stated which of John Hudson's articles you already have, but the series was in three parts, from April 1991-June 1991, so please feel free to send in for the missing two magazines.

DRIVE AWAY

I am writing to you for help on the following: A while ago, I bought a CPC 464 second hand and it had an FD-1 disc drive, but no leads (FD-1 to computer) and no operating manual for the disc drive. Can I connect the disc drive straight to the computer, or do I need anything else? If so, could you tell me what it is and how I can obtain it. Also, could you tell me where to get a manual and operating discs for the disc drive.

My second point is could you tell me how to get hold of back issues of ACU (i.e. the copy I require is July 1991). If you could either send me a copy or an order form, I would be very grateful.

W. J. Dyer, Cowes, Isle of Wight.

Ziggy: Hmmm, no leads eh? That's a bit naughty. The original FD-1s should come with their own lead, with an interface for a second drive incorporated. You could try a couple of places to get hold of one, the first being the Amstrad User Club on 091 510 8787. They might have a few knocking around still. Alternatively, try giving MicroStyle a ring on 0274 636652.

If anybody's got a manual and the like, then those two should be a fair bet. Moving on to your second point, back issues from March 1991 onwards can be easily obtained from the following address: ACU, Sunnyside Cottage, Carluddon, St Austell, Cornwall PL26 8TY. Simply enclose an A4 SSAE and postal order/cheque for £1.70 and we'll make sure a copy comes winging its way to you.

For any back issues before that date, try contacting MCM on 071 490 7161 and ask them to rummage around in the warehouse for you, OK?

COMPETITION



Here we go folks, with yet another fabulous ACU compo, arranged with those very benevolent people at US Gold. What's on offer this time? Wait for it! Yes, your very own Walkman, to help you blast out your eardrums without bursting anybody else's.

Whichever entry is judged the best will walk away with this fantastic prize but, there are also five copies of the excellent *G-LOC* on offer to the runners-up. So what do you need to do to win? Just send in your best drawing of a futuristic jet plane and the ACU crew will get to grips with the judging. OK, get drawing and don't forget to state which format you want the game on. Send your entries to:

ACU G-Loc Compo,
Sunnyside Cottage,
Carluddon, St Austell,
Cornwall. PL26 8TY.

The editor's decision is final.

O.J. SOFTWARE

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10 LINERS

AULD LANG SYNE

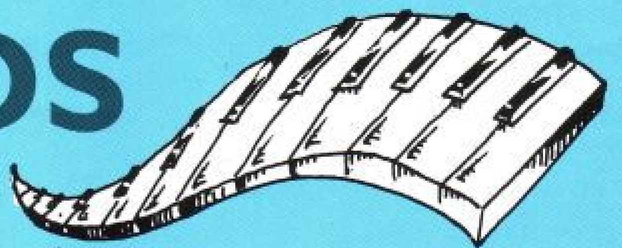
BY PAUL FAIRMAN

Well, we had to have something a little festive here, didn't we? Just run this little gem and treat yourselves to a little musical entertainment on New Year's Eve. By the way, the ACU crew wish you all a very merry Christmas at the keyboard.

```
10 REM Programmed by Paul Fairman for ACU  -  6.7.91 [75]
20 MODE 2:INK 0,0:BORDER 0:INK 1,26:PAPER 0:PEN 1:CLS [A8]
30 FOR e=1 TO 96:READ l:k=k+l:NEXT:IF k<>15402 THEN PRINT"Da [38]
ta error!":END ELSE RESTORE:FOR r=1 TO 32:READ a,b:SOUND 1,a [38]
,b:NEXT:GOSUB 50:RESTORE 70:FOR t=1 TO 9:READ x,y:SOUND 1,x, [38]
y:NEXT:GOSUB 50:RESTORE 90:FOR q=1 TO 9:READ a,b:SOUND 1,a,b [38]
:NEXT:GOSUB 50 [38]
40 RESTORE 70:FOR a=1 TO 9:READ b,c:SOUND 1,b,c:NEXT:RESTORE [7F]
 100:FOR r=1 TO 8:READ a,b:SOUND 1,a,b:NEXT:END [7F]
50 FOR as=1 TO 100:NEXT:RETURN [3F]
60 DATA 478.50,358,50,379,40,358,50,284,50,319,50,358,40,319 [F0]
,50,284,50,358,50,0,5,358,50,284,50,239,50,213,90,0,50 [F0]
70 DATA 213,50,239,50,284,40,0,5,284,50,358,50,319,50,358,50 [B6]
,319,50 [B6]
80 DATA 284,50,358,50,426,40,0,5,426,50,478,50,358,70 [22]
90 DATA 0,20,213,50,239,50,284,40,0,10,284,50,239,50,213,90: [2C]
  SHEEPSOFT 1991 [2C]
100 DATA 0,20,284,50,358,50,426,40,0,2,426,50,478,50,358,200 [5B]
```

CHORDS

BY SEAN MCMANUS



Here's a clever little routine that's designed to test your knowledge of the piano keyboard. So, come on all you budding Dickie Claydermans, enter the skill level, watch for the chord name to appear, then try to beat the computer to the right keys. Not bad at all.

```
1 ' Keyboard Chords Tutor Mark II [71]
2 ' [72]
3 ' (C) 1991 Sean McManus - 8th February 1991 [73]
4 ' [74]
10 MODE 1:INK 1,26:INK 0,3:BORDER 3:PEN 1:PAPER 0:LOCATE 11, [46]
4:PRINT"Keyboard Chords Tutor":LOCATE 12,6:PRINT CHR$(164)"1 [46]
991  Sean McManus":LOCATE 10,15:PRINT"Enter Skill Level (1-5 [46]
)":WHILE INSTR(" 12345",a$)<2:a$=UPPER$(INKEY$):WEND:pause=6 [46]
00+VAL(a$)*200 [46]
20 MODE 0:INK 0,9:BORDER 9:INK 1,13:FOR g=1 TO 7:PLOT 85+g*6 [94]
5,50,1:DRAWR 10,10:DRAWR 0,250:DRAWR -65,0:DRAWR 0,-250:DRAW [94]
R 10,-10:DRAWR 45,0:NEXT:DIM i(15):FOR g=3 TO 14:READ i:i(g) [94]
=26*i:NEXT:SYMBOL 255,48,254,22,60,116,210,254,16:LOCATE 20, [94]
25 [94]
30 INK 2,19:PEN 2:PAPER 0:PRINT CHR$(255);:FOR g=1 TO 6:IF g [27]
<>4 THEN PLOT 95+g*65,310,0:DRAWR 0,-155,0:PLOT 70+g*65,310, [27]
1:DRAWR 40,0:DRAWR 0,-150:DRAWR -6,-6:DRAWR -20,0:DRAWR -6,6 [27]
:DRAWR 0,150:DATA 1,0,1,0,1,0,1,1,0,1,0,1 [27]
40 NEXT:DIM cname$(13),chord(13,3):FOR g=1 TO 12:MOVE 90+g*3 [1B]
5,190:FILL g+2:READ cname$(g):FOR h=1 TO 3:READ chord(g,h):N [1B]
EXT h,g:SPEED INK 4,4:PEN #1,15:PAPER #1,0:INK 15,20:WINDOW [1B]
#1,1,20,2,2:WINDOW #2,1,20,4,4:PEN #2,15:PAPER #2,0:WHILE 1 [1B]
50 FOR i=3 TO 14:INK i,i(i):NEXT:g=INT(RND*11)+1:a=3:b=3:c=3 [9D]
:d=chord(g,3):a$=cname$(g):b$=a$:ON (RND*3)+1 GOSUB 70,80,90 [9D]
,100:CLS #2:LOCATE #2,10-0.5*LEN(b$),1:PRINT#2,b$:CLS #1:LOC [9D]
ATE #1,10-0.5*LEN(a$),1 [9D]
60 PRINT#1,a$:FOR g=1 TO pause:NEXT:INK a,15,24:INK b,15,24: [94]
INK c,15,24:INK d,15,24:FOR g=1 TO pause:NEXT:WEND [94]
70 a=chord(g,1):b=chord(g,2):c=chord(g,3):RETURN:DATA C,10,1 [EA]
4,5,C#/Db,11,3,6,D,12,4,7,Eb,13,5,8,E,14,6,9,F,3,7,10,F£/Gb, [EA]
4,8,11,G,5,9,12,Ab,6,10,13,A,7,11,14,Bb,8,12,3,B,9,13,4 [EA]
80 a=chord(g,1):b=chord(g,2)-1-((chord(g,2)=3)*12):c=chord(g [2A]
,3):a$=a$+" Minor":b$=b$+"m":RETURN [2A]
90 GOSUB 70:d=chord(g,1)-2-((chord(g,1)<5)*12):a$=a$+" Seven [0E]
th":b$=b$+"7":RETURN [0E]
100 GOSUB 80:d=chord(g,1)-2-((chord(g,1)<5)*12):a$=a$+" Seve [E9]
nth":b$=b$+"7":RETURN [E9]
```

HEXTODEC

BY PETER WILKINS

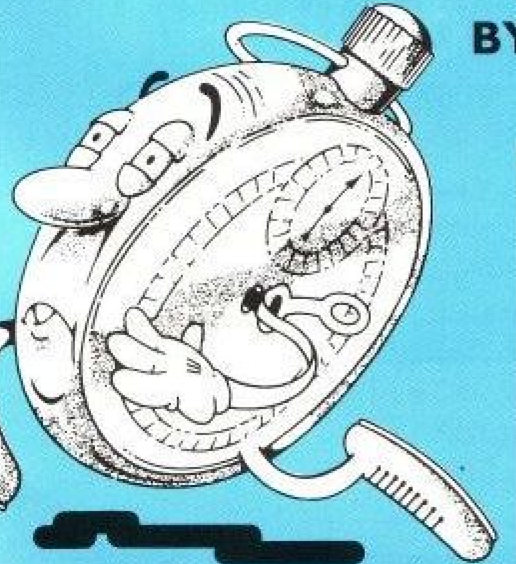
An excellent little utility this one. It should fit in nicely with Dr Watson's current tutorials as well. Simply run it, follow the on-screen prompts and you should be able to convert from hex to decimal to binary and back in no time at all. Nicely devised Peter.

```
++++++1 'NUMBER BASE CHANGER (C) PETER WILKINS 1991 (FOR SERIOUS A [71]
MSTRAD USERS) [71]
10 MODE 2:INK 1,15:INK 2,6:INK 3,18:INK 0,0:BORDER 0:PAPER 0 [8A]
:PEN 1:DIM C$(6):LOCATE 15,1:M$="HEX TO DEC TO BIN CONVERTER [8A]
 (C) PETER WILKINS 1992":PRINT M$:LOCATE 15,25:PRINT M$:LOCA [8A]
TE 27,12:PRINT"PRESS  'SPACE' TO CONTINUE":WHILE INKEY(47)<> [8A]
0:WEND:MODE 2 [8A]
20 PEN 1:RESTORE:FOR C=1 TO 6:READ C$(C):LOCATE 29,C+1:PRINT [EF]
 C;"- ":LOCATE 35,C+1:PRINT C$(C):NEXT C:DATA "DECIMAL TO HE [EF]
X","HEX TO DECIMAL","DECIMAL TO BINARY","BINARY TO DECIMAL", [EF]
"BINARY TO HEX","HEX TO BINARY" [EF]
30 PLOT 228,386,1,0:DRAWR 184,0:DRAWR 0,-100:DRAWR -184,0:DR [03]
AWR 0,100:LOCATE 32,9:INPUT"ENTER CHOICE : ",N:ON N GOTO 40, [03]
50,60,70,80,90:IF N<1 OR N>6 THEN MODE 2:GOTO 20 [03]
40 MODE 1:LOCATE (40-LEN(C$(N)))/2+1,1:PRINT C$(N):PRINT:INP [06]
UT "ENTER DECIMAL : ",D:PRINT:H$=HEX$(D,4):PEN 3:PRINT "HEX  [06]
: ";H$:GOTO 100 [06]
50 MODE 1:LOCATE 1,25:PRINT"PREFIX HEX NUMBER WITH '&' SIGN" [CA]
:LOCATE (40-LEN(C$(N)))/2+1,1:PRINT C$(N):PRINT:INPUT "ENTER [CA]
 HEX : ",H:PRINT:D=H:PEN 3:PRINT "DECIMAL : ";D:GOTO 100 [CA]
60 MODE 1:LOCATE (40-LEN(C$(N)))/2+1,1:PRINT C$(N):PRINT:INP [EF]
UT "ENTER DECIMAL : ",D:PRINT:B$=BIN$(D,8):PEN 3:PRINT "BINA [EF]
RY : ";B$:GOTO 100  [EF]
70 MODE 1:LOCATE 1,25:PRINT"PREFIX BINARY NUMBER WITH '&X' S [73]
IGN":LOCATE (40-LEN(C$(N)))/2+1,1:PRINT C$(N):PRINT:INPUT "E [73]
NTER BINARY : ",B:D=B:PRINT:PEN 3:PRINT "DECIMAL : ";D:GOTO  [73]
100 [73]
80 MODE 1:LOCATE 1,25:PRINT"PREFIX BINARY NUMBER WITH '&X' S [74]
IGN":LOCATE (40-LEN(C$(N)))/2+1,1:PRINT C$(N):PRINT:INPUT "E [74]
NTER BINARY : ",B:H$=HEX$(B,4):PRINT:PEN 3:PRINT "HEX : ";H$ [74]
:GOTO 100 [74]
90 MODE 1:LOCATE 1,25:PRINT"PREFIX HEX NUMBER WITH '&' SIGN" [CE]
:LOCATE (40-LEN(C$(N)))/2+1,1:PRINT C$(N):PRINT:INPUT "ENTER [CE]
 HEX : ",H:PRINT:B$=BIN$(H,8):PRINT:PEN 3:PRINT "BINARY : "; [CE]
B$:GOTO 100 [CE]
100 PRINT:PEN 2:PRINT "PRESS SPACE TO CONTINUE":WHILE INKEY( [3E]
47)<>0:WEND:MODE 2:GOTO 20 [3E]
```

TIKTOK

BY PETER WILKINS

Another handy routine here, that'll display a running 24 hour clock on your screen for you. All you need to do is input the correct time, then sit back and watch it tick. Doesn't time fly when you're having fun?



```
1 '24 HOUR CLOCK (C) PETER WILKINS 1991 [71]
10 INPUT"HOURS";HOUR:INPUT"MINUTES";MINS:INPUT"SECONDS";SECS [E4]
:MODE 0 [E4]
20 EVERY 50 GOSUB 90 [91]
30 WHILE HOUR<24 [3A]
40 IF SECS=60 THEN MINS=MINS+1:SECS=0 [5A]
50 IF MINS=60 THEN HOUR=HOUR+1:MINS=0 [4B]
60 LOCATE 5,10:PRINT HOUR;":";MINS;":";SECS;" " [6D]
70 WEND [1C]
80 HOUR=0:MINS=0:SECS=0:GOTO 30 [40]
90 SECS=SECS+1 [7C]
100 RETURN [BB]
```

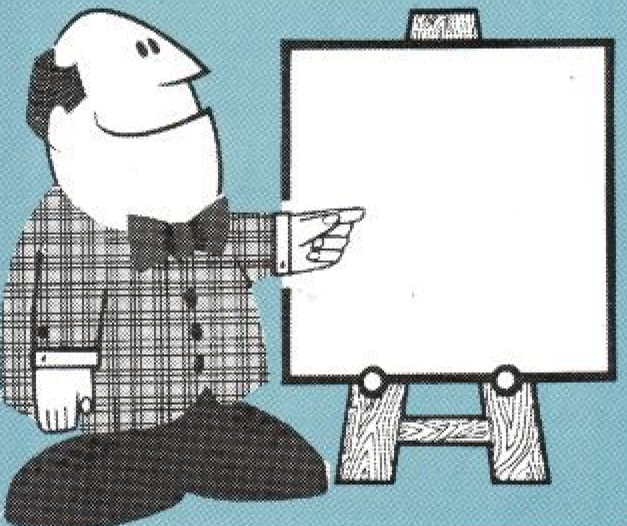
INVASION

BY BIG LOZ

Well Lawrence. This isn't quite the worst game ever, but I've probably seen better. Whatever, it's not half bad for testing your reflexes. Use the space bar to zap the fat gits and see if you can adapt it for your own pleasure.

```
1 'INVASION by Big Loz 1991 [71]
2 'Probably the worst game ever [72]
10 MODE 1:INK 0,0:INK 1,24:INK 2,2:BORDER 0:N=0:M=0:SYMBOL A [25]
FTER 128 [25]
20 SYMBOL 128,0,24,255,126,126,60,24,60 [05]
30 CLS:PEN 1:PRINT "Shots fired   : ";N:PRINT:PRINT "Dead fa [43]
t gits : ";M:LOCATE 35,24:PEN 2:PRINT CHR$(171):IF N=10 THEN [43]
 110:IF M=10 THEN 130 [43]
40 FOR x=1 TO 40:LOCATE x,5:PEN 3:PRINT CHR$(128) [5D]
50 a$=INKEY$:IF a$=" " THEN 70 [DF]
60 SOUND 1,x+50,10:LOCATE x,5:PRINT " ":NEXT x:GOTO 40 [E4]
70 FOR y=23 TO 1 STEP -1:LOCATE 35,y:PEN 1:PRINT "¦":SOUND 1 [AF]
,y+50,10 [AF]
80 IF SQ(1)>127 THEN GOTO 80 [C3]
90 FOR t=1 TO 50:NEXT t:LOCATE 35,y:PRINT " ":NEXT y:N=N+1:I [7E]
F x=35 THEN M=M+1 [7E]
100 GOTO 30 [90]
110 PEN 2:LOCATE 11,12:PRINT " G A M E  O V E R" [BE]
120 b$=INKEY$:IF b$="" THEN 120 ELSE 10 [17]
130 PEN 2:LOCATE 11,12:PRINT "W E L L  D O N E" [2C]
140 c$=INKEY$:IF c$="" THEN 140 ELSE 10 [6E]
```





EQUATION

BY DAMON SCHULTZ

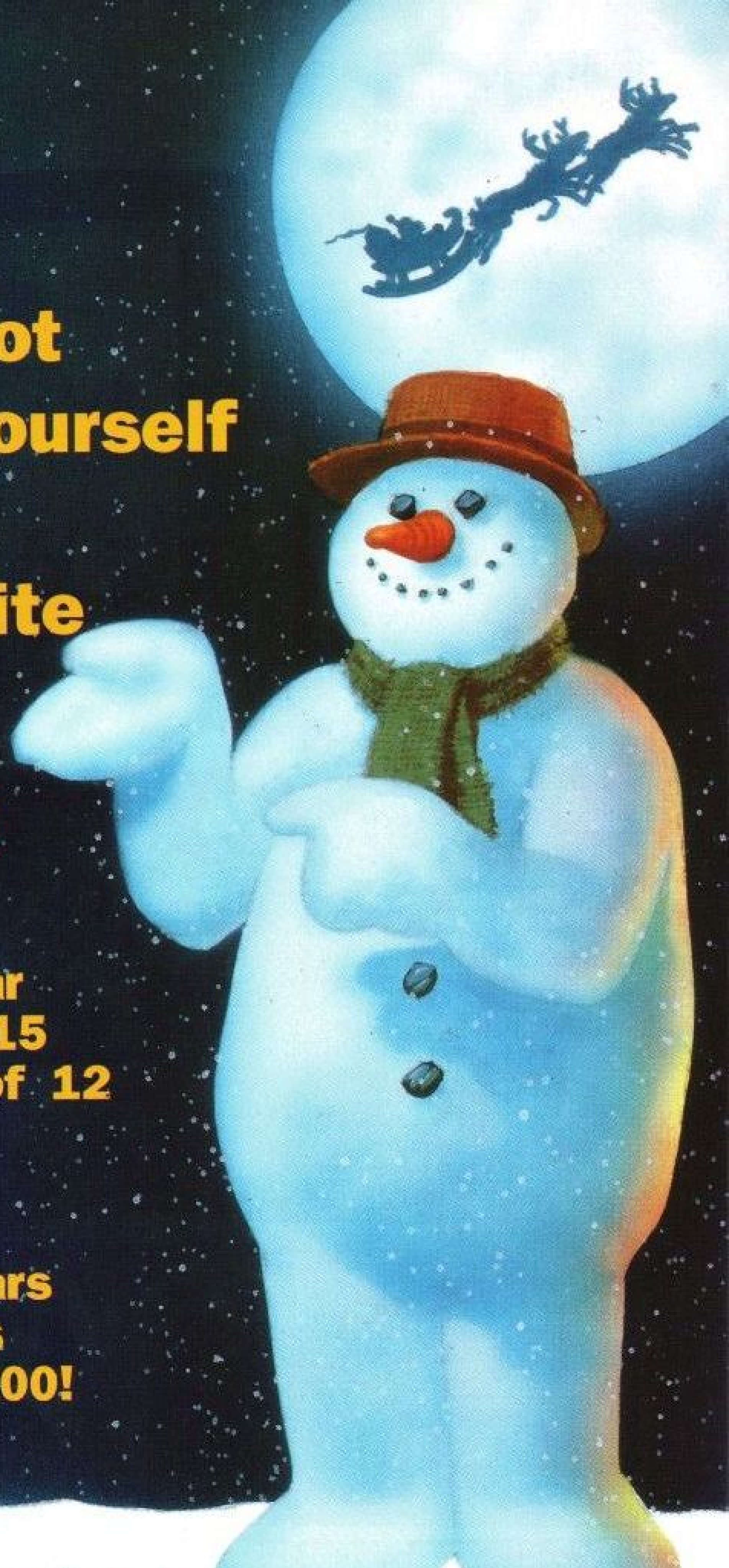
Here's something that's definitely for the more mathematically orientated of us, offering a solution to any 2-value simultaneous linear equation. It goes along the lines of: find two numbers such that twice the first plus three times the second is equal to 12, and three times the first plus five times the second equals 19.

e.g.: $2x + 3y = 12$
$3x + 5y = 19$

The solution is, of course, x=3 and y=2. Good luck and see how you fare.

```
1 'Two-value simultaneous linear equations [71]
2 'by Damon Schultz [72]
3 MODE 1:CALL &BB4E:CALL &BC02:WINDOW#0,1,40,3,25:WINDOW#1,1 [67]
,40,1,2:DIM matrix(2,1):SYMBOL AFTER 240:SYMBOL 240,0,0,0,&4 [67]
0,&C0,&40,&40,&E0:SYMBOL 241,0,0,0,&C0,&20,&40,&80,&E0 [67]
4 PRINT" Two value simultaneous linear equations";:PRINT#1,C [AF]
HR$(13)CHR$(22)chr%(1)STRING$(39,"_")CHR$(22)CHR$(0):PRINT:P [AF]
RINT"These are of form :":PRINT [AF]
5 FOR a=240 TO 241:NEXT:LOCATE 10,VPOS(#0):PRINT"a"CHR$(a)"x [9A]
+b"CHR$(a)"y=c"CHR$(a)2  ("right$(str$(a-239),1)")":print:NE [9A]
XT [9A]
6 PRINT:FOR a=240 TO 241:FOR b=97 TO 99:LOCATE 1,VPOS(#0):PR [17]
INT"Enter value for : "CHR$(b)CHR$(a);:INPUT;" ",matrix(b-97 [17]
,a-240):LOCATE 22,VPOS(#0):PRINT SPACE$(10);:NEXT b:NEXT a [17]
7 CLS#0:PRINT:FOR a=0 TO 1:LOCATE 10,VPOS(#0):PRINT matrix(0 [34]
,a)CHR$(8)"x+ "matrix(1,a)CHR$(8)"Y= "MATRIX(2,A)CHR$(8)"  ( [34]
"RIGHT$(STR$(A+1),1)")":PRINT:NEXT [34]
8 PRINT:det=matrix(0,0)*matrix(1,1)-matrix(1,0)*matrix(0,1): [F8]
IF det=0 THEN PRINT"    These equations cannot be solved sim [F8]
ultaneously.":PRINT:END [F8]
9 x=(matrix(1,1)*matrix(2,0)-matrix(1,0)*matrix(2,1))/det:y= [F6]
(matrix(0,0)*matrix(2,1)-matrix(0,1)*matrix(2,0))/det [F6]
10 PRINT"   x ="x;:LOCATE 25,VPOS(#0):PRINT"y ="y:PRINT:PRIN [BC]
T:PRINT"Press any key to restart, or <E> to end":i$="":WHILE [BC]
 i$="":i$=UPPER$(INKEY$):WEND:IF i$="E" THEN END ELSE RUN [BC]
11 IF i$="R" THEN RUN:IF i$="E" THEN END [0F]
```

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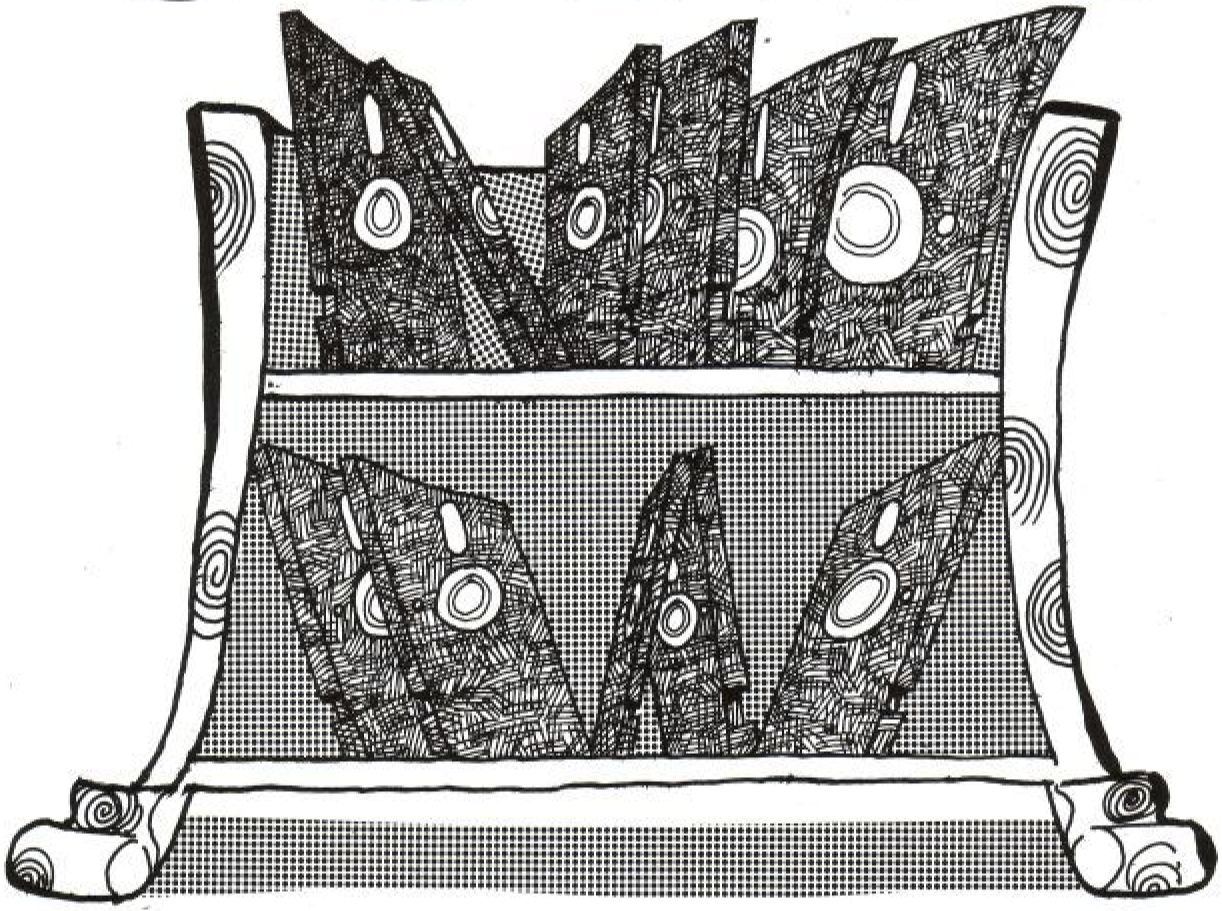
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PD Scene



Uncle Bob is getting confused, and rightly so, considering the latest developments in Public Domain land.

WHEN IS Public Domain NOT Public Domain?

I am getting increasingly confused by the title 'Public Domain', or do I mean I'm getting confused by other people's interpretation of it? See, I told you I was confused! To my mind, 'Public Domain' is a pieceof programming which has been donated to the world, free of all restrictions and charges and may be freely copied and passed on to anybody that wants it, with the original author still retaining the copyright. Public Domain libraries are either individuals or organisations who have offered to distribute this free software far and wide, at a small charge to cover the cost of copying, magnetic media, postage, etc. For the CPC computer, these charges are between 25p to £1 per side of your own disc. Any charges higher than this are unacceptable.

Fair enough so far, but I am increasingly being informed of 'Public Domain' programs 'selling' for £5 or £6 per disc. Now at this price I start to wonder if we are still talking about 'Public Domain' or are we really into the world of commercial products? Then another library will get hold of the same program and supply it for 50p or less. Stranger and stranger!

Another grey area that is on the increase, is when the same 'Public Domain' libraries start to include in their price list 'exclusive programs', only available from them and an absolute snip at only £14.94! Now come on everybody, let's please try and clarify this situation. I do not believe it is proper to call yourself a P.D. library and also *sell* commercial programs. However, it seems perfectly reasonable to call yourself something like Bloggs Software - *and* also have a Public Domain section. With this approach, the customer would have a much clearer idea of what type of business he/she was dealing with.

Finally, we now have 'Almost P.D.'! If anybody can explain that term to me, then I'd be very grateful. If you agree with any of the above or you would prefer to explain why I'm barking mad, then I'd love to hear from you.

*****NEWS*NEWS*NEWS*****

And now for something completely different. Tom Faull has come up with a novel idea and I'll let him tell you about it himself:

I have started a P.D. library mainly filled with computer sound effects (FX). There are some useful programs too. This library will be mainly useful for people who write games and other libraries. Also people who are either interested or curious about what the CPC is capable of doing, will find it fun to use and enlightening. The library has well over one hundred sounds and programs. People can use my sound FX in their own programs as they are all totally Public Domain.

Tom has sent me some examples of his work on a cassette and they were a very varied selection of sounds indeed. Quite good fun and many of them could easily be used in various types of games



ADVENTURE PD.
10 Overton Road,
Abbey Wood,
London SE2 9SD.

DARTSMA PD Library.
C/0 Adam Shade,
47 Kidd Place,
Charlton,
London SE7 8HF.

DATA PD Library.
202 Park Street Lane,
Park Street,
St Albans,
Herts AL2 2AQ.

DRAGON PD.
The Flat,
415 Whitehall Road,
Bristol BS5 7BP.

DW SOFTWARE.
62 Lascelles Avenue,
Withernsea,
North Humberside HU19 2EB.

STUART HECTOR.
1 Chestwood Close,
Sticklepath,
Barnstaple,
North Devon EX31 2EH.

PENGUIN SOFTWARE.
Ruxley House,
28 Mount Hermon Road,
Woking,
Surrey GU22 7UH.

ROBOT PD LIBRARY.
2 Trent Road,
Oakham,
Rutland LE15 6HF.

SOUNDS LIKE PD.
6 Keyberry Park,
Decoy,
Newton Abbot,
South Devon TQ12 1BZ.

etc. If the idea of using a tape puts you off, then I can assure you that I easily transferred the sounds to disc and they ran perfectly on my 6128.

Tom's library is called Sounds Like P.D. and if you would like to get more details of what is on offer, then his address appears at the end of the column.

Another new name on the P.D. scene (that sounds like a good name for an article!) is Stewart Hector. Stewart has so far only put one disc together, but it comes complete with document files for every program. (Very rare that, in the P.D. world!) The disc contains a mixture of games and utilities that are mostly written in Basic and include a few sprite routines and even some complete programs that have been copied from and fully credited to in the REM statements, some magazine Public Domain type-ins. He has not only done all the typing in for you, such as the 2,521 lines of a database program but in his own words, has almost totally debugged them as well! Anybody that has typed in a long magazine listing and then had to wait for the next three issues to appear with all the corrections, will know this feeling well. Stuart can also supply his programs on tape but fears that a few of them may only run under Basic version 1.1. Send a jiffy bag with your disc or tape and either £1 for the disc or £1.50 for the tape version. Address at the bottom again.

David Long of Demon PD has sent me a new updated list of all his discs. This is available as either a printed list or on one side of your own disc. Ask for PD 00 and it is available free. Demon's list now includes 67 selections and covers most tastes, including some demos that I would quite like to see. I'm becoming a bit of a fan of demos. David has also asked me to include a plea to all P.D. purchasers: *Please send an SAE with your order! I have had quite a few orders with no SAE's and the Post Office requires you to put 24 pence on each first class envelope and much more on parcels!* Seems only fair to me. Demon's address can be found (guess where?).

Another new library that is vying for attention this month is Dragon PD. Run by Lee Davies, it is only just starting off and trying to build up a stock of titles. The sample disc sent to me included a variety of Basic programs written by Lee himself and some others that were not credited. If you have some P.D. to swap then I suggest you contact Lee at the address below.

Finally, Adventure PD have now entered the world of desktop publishing and are producing a bimonthly newsletter called *Dragon News*, which is available free but only if you include an SAE. Full of adventuring news, letters, hints, maps, adverts and all of it written in a light-hearted style. Nice one Debby. Please send me some more when they are available.



I'VE GOT A BRAND NEW JOYSTICK...

...AND I'M NOT AFRAID TO USE IT (PART 2)

The epic ACU joystick round-up, rounds up with a look at the PowerPlay/ Sonmax range of blasters.

THE SURESHOT SUPREME

Now here's a definite improvement on the Standard, as the name implies, which will give you an excellent all-rounder without costing you the earth. With a self-centralising nylon shaft, the stick itself is highly responsive, guaranteeing excellent performances on race cornering, as well as in shooties, where a quick change of direction could mean the difference between life and death.

With the fire buttons located not too far away at the front of the casing, the Supreme is ideal for both tabletop and hand-held use, even though the stickies on the bottom may get in the way a little during hand-held use.

Again, the Supreme features the superb triple-action autofire system, allowing for single shot, rapid burst and mega-blast continuous fire. Like the Terminator, the main problem is going to be in keeping an eye on your ammo count, to stop you running out in an awkward situation.

Like its sister stick, the Crystal Turbo, the Supreme may not look the sleekest device on the market but, for all-round blasting performance, you'll have to go a long way to better it. Sensible and down to earth, the Supreme certainly packs a mighty punch.



Sureshot Supreme
Cost: £14.99
ACU Rating: 88%

THE CRUISER

Coming in sleek black or multi-coloured options, the Cruiser is a low-slung, beast of a stick that looks as if it means business. In short, it does. Featuring a special stick sensitivity option, which means you can vary the stiffness of the stick action, the Cruiser is a pretty good all-rounder on most games.

Racing freaks will find cornering with the Cruiser a real joy. The action may take a little getting used to and



TERMINATOR

This is the latest in the PowerPlay/ Sonmax range and offers all of the hi-tech developments of the range, including the excellent triple-action auto-fire switch. Basically, this means single shot through to ultimate devastation on shooties. Just remember to keep a count on your ammo supply when in Mega-auto fire mode.

The stick feels a little tight to start with, but gives you enough scope for easy manoeuvring. The trigger positions allow for easy access at all times and the handling on racing games is fairly responsive.

Very sticky, you should have no problems keeping this one on your table, which is just as well as it may make your thumb ache after a while as a hand-held stick.

All in all, the fully microswitched Terminator offers pretty good all-round handling on both shooties and race games. It's not the best stick in the world, but it does make an excelent back-up if your fave stick goes up the creek.

The Terminator
Cost: £15.99
ACU Rating: 78%

appears a little slow, but don't be mislead, as the Cruiser really delivers. On shooties, the fire buttons are a little too far forward for truly easy firing and you may find you have to take this one in hand, as the stickies on the bottom aren't a guaranteed success, depending on your playing surface.

Extremely durable, the Cruiser should last you many a month without hassle and, if you can cope with the fire buttons being a little cumbersome at times, it should see you to one or two high scores without too many problems.



The sensitivity adjustment on the stick certainly works and makes for the feeling of two sticks rolled into one, guaranteed to give you good playing power on a variety of different games.

The Cruiser
Cost: £10.99
ACU Rating: 85%

THE ZIPSTIK SUPER PRO

This one sounds as if it should be reserved for the experts but, when all is said and done, the Super Pro makes for an excellent first choice joystick with good, all-round performance.

The Super Pro fits very nicely into the hand, featuring a very responsive stick and easily accessible fire buttons. Looking a tad stumpy in its design, the Super Pro is acutally very, very good.

Cornering in race games is tight and predictable, while the stick reaction in tight situations is as good as you can expect from the best sticks on the market. Like many of the PowerPlay/Sonmax range, the stickies are not too adhesive on many surfaces but then, most joysticks suffer from this malady, while the Super Pro more than compensates with its hand-held capabilities.

This one features the special triple action autofire option as well so that you'd be hard pressed to better the SuperPro in a head to head contest.

It certainly won't give you thumbache and, if push comes to shove, the Super Pro has to be up with the Supreme as the best offerings from the range.

Zipstick Super Pro
Cost: £17.99
ACU Rating: 89%



THE SURESHOT COMMAND MODULE

Looking like something out of Star Trek, the Sureshot Command Module must come high in the gimmick stakes this Christmas, though not, of course, as high as last month's tortoise offering.

Don't be confused by the multitude of buttons on the module, as most of them are purely decorative, leaving you with the stick and two large fire buttons at the front of the console.

This one features autofire as well, so the options are all there. The fire buttons are extra large, so that you don't miss them in your excitement and the stick itself features a robust steel shaft for extra durability.

Performance on race and shootie blasts is pretty good, though I suspect that this one is mainly for the kids, looking good being the main issue rather than fancy handling.

For the price, it doesn't half fit the bill. It looks fancy and, to be fair, handles fairly comprehensively as well. If you're looking for something that little bit different this year, why not give it a go. However, I should keep your favourite stick handy if you want to challenge the high scores, as the module is just too bulky for ease of play.

Sureshot Command Module
Cost: £18.34
ACU Rating: 72%



THE SURESHOT STANDARD

Standard is the name and the playing power is pretty much standard as well. You'll find no bonus gadgets on this one, but it certainly looks mean enough. With robust steel shaft and sensitive microswitches, the Standard's durability should be a guarantee. However, when you get to grips with it, the whole ensemble feels a little too loose all round to give that effect.

Handling well on race games, the stick feels a little too lackadaisical to give precision movements needed in shooties. This looseness gives rise to some vagueness on direction but, on the whole, it does what you want it do to.

Well designed to fit snugly in your hand as well as on the table, the fire button is close enough for you to feel in control and is responsive enough for quick shooting.

Without proper stickies on the bottom, it may be best to take this one in the hand but, that said, performance is pretty good both ways.

All in all, the Standard is a low-cost, no-frills stick that performs rather better than expected, though it certainly isn't the best stick on the market.

Sureshot Standard
Cost: £10.99
ACU Rating: 68%

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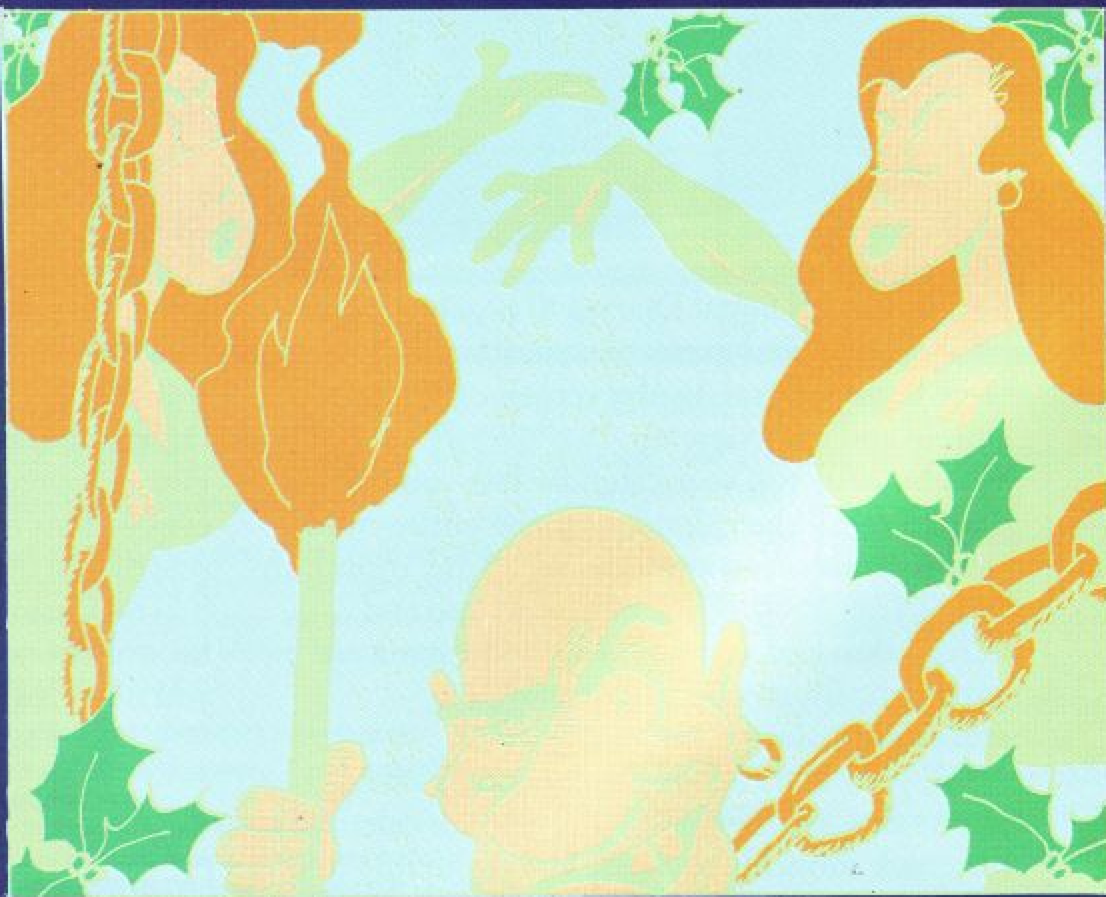
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THE DUNGEON MASTER

DM unveils some epic new adventure tidings to keep you warm through the festive season.

The Dungeon is looking especially pretty at the moment, festooned with all manner of festive decorations. My little helpers, (a ferocious tribe of female amazonian warriors who have developed a keen interest in needlework), have been adding a little pre-Christmas sparkle to the halls and chambers of Chez Dungeon. They have reserved their best efforts though for their favourite room - the torture chamber. Here, all the chains have been painted silver and red, the rack is covered in holly and a large carcass is turning slowly on the roasting spit. In the middle of the chamber is one of the largest fir trees I have ever seen growing indoors. I can't help thinking that the fairy on the top looks familiar though, as well as most uncomfortable. With all these high spirits going on around me, I cannot fail to wish you all the merriest of Christmas's and hope you all have an adventurous New Year. Cheers.



NEWS

The first issue of *The Reference Book of Adventure, Strategy, Simulation and Role Playing Games* is now available from *The Adventure and Strategy Club.* This is not only good news and a good read but it is also the longest title that I've ever had to type in. For those readers who are ex-members of The Adventurers Club Ltd, the loose-leaf format of this new bimonthly publication is almost identical to it's predecessor but make no mistake, it is now being written and published by an entirely different and more friendly bunch of people. I liked the first issue and I recommend that you should write for further details to: A & S C, 17 Sheridan Road, London E12 6QT.

Marion Taylor has written to me with news of yet another new adventure magazine. This one is to go by the delightful title of *Red Herring* and the press releases have been accompanied by some rather silly cartoons that have made me chuckle. Another magazine devoted to adventures is excellent news and further reinforces my opinion that adventuring is on the increase. If this magazine lives up to its promise of adventuring news, solutions, maps, etc., plus a dollop of humour, then it will be a most welcome addition to the scene. The first issue is planned to be A5 size with at least 80 pages and will cost £2.95. You can contact Marion Taylor at 504 Ben Jonson House, Barbican, London EC2Y 8DL.

REVIEW

Our Yuletide review is by Jay Honosutomo of Hemel Hempstead, near Tokyo. Jay has chosen to write about *Crispin Crunchy* by M&J

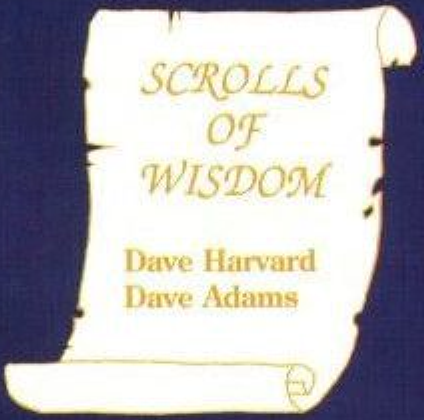
Trewhella, from WoW Software (£2 tape, £4 disc) and says:

In this GAC'ed adventure, you play the part of Crispin Crunchy, intrepid adventurer and MI5 secret agent. You are nearing the end of an important and dangerous mission when you are captured and taken prisoner. A mad scientist called Dr. Hinson has been busy developing a Glutron missile. All of his work has been kept under close guard on a small island based in the South Seas. His evil plan is to hold the World under siege and get anything he wants, all by power of the missile.

Your mission was to be deployed on the island and steal the firing mechanism of the missile. From then on, you would signal to an awaiting submarine and return to Britain. Unfortunately, there was a slight mishap to the plan and you are captured by Dr. Hinson's guards who place you in a dank cell. The obvious objective of this adventure is to escape from your cell, steal the firing mechanism and safely leave the island. Oh well, here we go again!

This was one of the first batch of new games to be released on the WoW label and I am pleased to say I quite enjoyed it. It is a well written little game with nice touches and the atmosphere is realistic and believable. All of the obstacles that will confront you are logical and well proportioned. The game has also been well playtested and all bugs and spelling mistakes have been eradicated. Overall it is an enjoyable game which is worth buying.

Well done Jay! Give yourself another helping of Christmas pudding for sending that in for us. I'll grab you something from the treasure chest when old C.K. isn't looking, for your trouble.



SCROLLS OF WISDOM

The following good people who are experienced adventure players, have kindly offered to help any readers who are having difficulty with a particular problem. Please do not ask for full solutions and treat the 'Scroller's' with due respect. Either telephone them ONLY during the times shown or include a stamped S.A.E. if you write to them.

Dave Havard. 21 Belvoir Close, Fareham, Hants PO16 0PJ. *Dave is willing to provide help on the whole Infocom range:* Ballyhoo, Cutthroats, Deadline, Enchanter, Hitchhikers Guide, Hollywood Hi-Jinx, Infidel, Leather Goddess, Lurking Horror, Moonmist, Planetfall, Seastalker, Sorcerer, Spellbreaker, Starcross, Stationfall, Suspect, Suspend, Wishbringer, Witness, Zork's 1, 2 & 3.

Dave Adams, 49 Myers Gardens, St Helens, Merseyside WA9 3YX. *It's great to see another new name willing to offer help.* Dave can assist with: Adult II, Atalan, Boredom, Can I Cheat Death, Case of the Mixed-up Shymer, Doomlords I & II, Dungeon, D.A.A., Experience, Firestone, Jason and the Argonauts, Magician's Apprentice, Message from Andromeda, Mystery Mansion, Quest for the Golden Eggcup, Scary Tales, Seabase Delta, Spaced Out, Spytrek, Stryptische, Subsunk, Tizpan.

HINTS & TIPS

Dave Adams has also provided the first of this month's tips in a slightly cryptic fashion for us. Thanks Dave.

Bestray: When the monkey steals an object, drop something and he will ape you.

Spytrek: Read the tramp's sign to figure out what he wants.

Atalan: Eat the fruit quickly or you'll have nothing to fish with.

Tizpan: Give the native woman a laugh by removing an article of clothing.

Firestone: Don't forget to hold your breath before getting in over your head.

Golden Eggcup: Wave the wand at the chasm for an uplifting experience.

Message From Andromeda: Wear the gloves before touching the slug-killing fungus.

Seabase Delta: Blowing a bubble has a startling effect on the hen.

Patrick Dyson of Shipley is our next helper. He responded to my appeal to save the column from 'Dave Havard domination. (Dave responded by sending me enough stuff to fill a whole magazine!) Many thanks to both of you.

The Base: Don't play the cassette in the Governor's stereo. Play it in the car. Combination for the safe in Part One is Right 6, Left 5, Left to 3.

Corruption: The cocaine is in the cistern in the cubicle. If you want to know what's going on at the meetings at 9.00 and 11.42 in Mr Hughes office, then listen at the wooden door.

Guild Of Thieves: Before you feed the bear with the fish, sprinkle it with rat poison (found in the kitchen cupboard).

Grange Hill: You need the plane to get the matches. Don't cross the canal. You reach it from the other side later in the game.

Heroes Of Karn: To kill the Knight, throw acid at him. Kill the Barrowight with the Bible (to get the money). To pass the hot ashes, put water on them. Kill the Hydra with the spear. Use honey to put the bear to sleep. Oil the chest before opening it.

Well I hope that I've covered your particular problem in the above selection but if not, you should know by now what you need to do. Just write in and tell me the title of the game and where you are stuck. Then as if by magic, the answer will appear in these pages.

HELP ME!

G. Taylor of Durham has been waiting a long time for a reply to his letter to me, appealing for help with Shard Of Inovar by Bulldog Software. The delay was caused by his letter disappearing into a black hole at Panini House and it has only just arrived at the Dungeon. (The messenger was immediately shot for his tardiness!) Unfortunately, poor G is going to be further disappointed because I cannot help him/her with this icon clicking adventure. So if anybody knows the answer to the following problem, please write in and help me put G (no, I don't know what 'G' stands for either) out of his/her misery:

I can't get the Larynx to help me. I'm sure that by doing this I can get across the Adlaart Mire. I've tried just about everything but I must be doing something wrong. I've given the shard to the hand in the tree, left the Ryxblade where it belongs, etc. Please HELP ME!

Hold on to your sanity for a while longer G, I'm sure one of our wonderful readers will soon tell us the answer.

Until next month, happy adventuring in '92.

Please send all correspondence, hints, complaints, money, etc to: The Dungeon Master, c/o *Amstrad Computer User*, Sunnyside Cottage, Carluddon, St Austell, Cornwall PL26 8TY.

THE TECHIE BIT

Screen displays, a little hexing and a festive proggie to keep you warm from the Doc.

This month, we continue our whirlwind tour of the Amstrad's screen display by looking at some more handy firmware routines.
&BC05 SET OFFSET: offsets the address which the CRTC uses for the start of the video display. HL should contain the desired offset.
&BC08 SET BASE: defines the start address of the video RAM. Register A should contain the high byte of the required address e.g. &40, &C0.
&BC0B GET LOCATION: returns the high byte of the base address in register A. HL will contain any offset.
&BC11 GET MODE: returns the current mode number in register A.
&BC14 CLEAR: clears the whole screen to ink 0.

The following four routines all receive and return a screen address in HL.
&BC20 NEXT BYTE: moves screen address one byte right.
&BC23 PREV BYTE: moves screen address one byte left.
&BC26 NEXT LINE: moves screen address one line down.
&BC29 PREV LINE: moves screen address one line up.
&BC35 GET INK: send an ink number in A. B and C will contain the two colours currently associated with this ink.
&BC38 SET BORDER: changes border colour to the values given in B and C (if different then border will flash).

&BC3B GET BORDER: returns current border colours in registers B, C.
&BC3E SET FLASHING: sets the speed of any flashing colours. H and L determine the duration of each of the two colours, in units of fiftieths of a second.

The following routines deal with the Amstrad's graphics routines.
&BBBA GRA INITIALISE: initialises all graphics parameters.
&BBDB GRA CLEAR WINDOW: CLS.
&BBCC GRA GET ORIGIN: get origin position (x,y) in DE,HL.
&BBC6 GRA ASK CURSOR: get graphics cursor position (x,y) in DE,HL.
&BBCF GRA WIN WIDTH: limit x-axis to DE.
&BBD5 GRA GET WIDTH: put x-axis limit into DE.

&BBD2 GRA WIN HEIGHT: limit y-axis to HL.
&BBD8 GRA GET HEIGHT: put y-axis limit into HL.
&BBDE GRA SET PEN: set graphics pen to A.

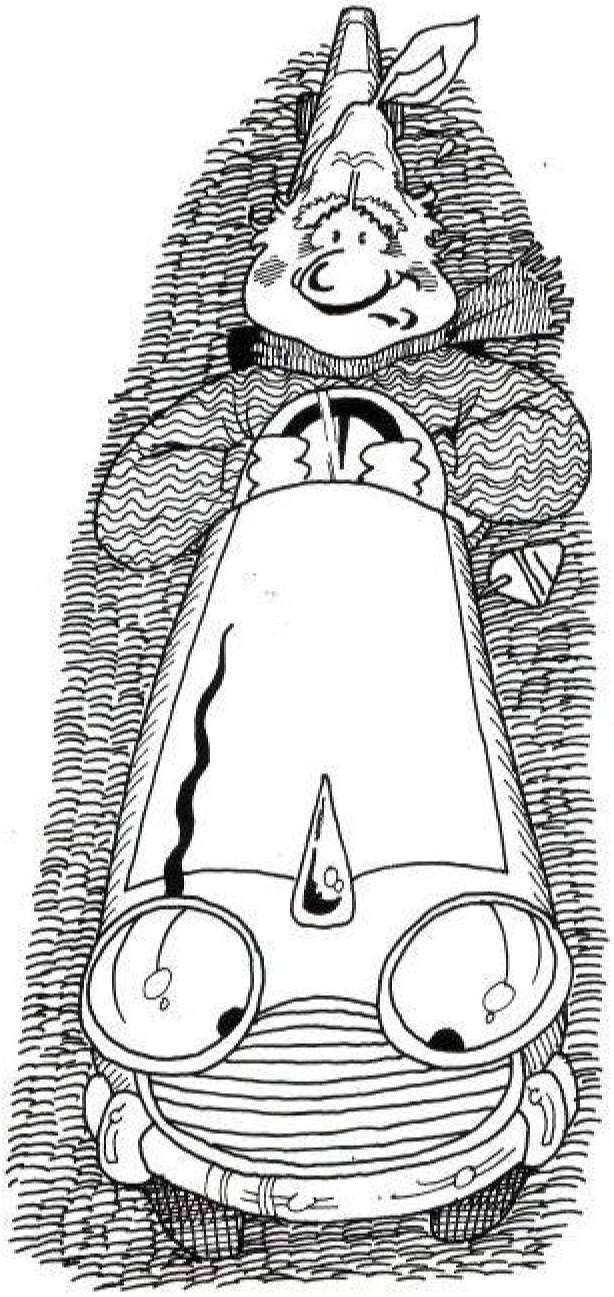
```
10 ' ** SNOW SIMULATOR!!**
20 '
30 '--- Setup Screen ---
40 DEG
50 MODE 0
60 INK 0,0
70 BORDER 0
80 INK 1,26
90 FOR x=0 to 639 STEP 16
100 i=2+INT(RND*14)
110 FOR y=0 to 399 STEP 4
120 PLOT x,y,i
130 PLOT x,y-2,i
140 i=i-RND*2
150 IF i<2 THEN i=15
160 NEXT y
170 NEXT x
180 '--- Draw Ground ---
190 FOR x=0 to 640
200 h=ABS(20*SIN(X))
210 h=h+(RND*10)+10
220 MOVE x,0: DRAWR 0,h,1
230 NEXT
240 '--- Animate Snow ---
250 FOR p=1 to 2
260 FOR n=2 to 15
270 INK n,26
280 CALL &BD19
290 INK n,0
300 NEXT n
310 NEXT p
320 GOTO 250
```

&BBE1 GRA GET PEN: get graphics pen in A.
&BBE4 GRA SET PAPER: set graphics paper to A.
&BBE7 GRA GET PAPER: get graphics paper in A.

The following routines require standard (x,y) screen coordinates to be passed to them in DE,HL respectively. In the case of relative routines, DE & HL should contain horizontal and vertical offsets.
&BBC9 GRA SET ORIGIN: reposition the graphics origin.
&BBC0 GRA MOVE ABSOLUTE: position graphics cursor.
&BBC3 GRA MOVE RELATIVE: position graphics cursor.
&BBF0 GRA TEST ABSOLUTE: returns the colour of the point at DE,HL in register A.
&BBF3 GRA TEST RELATIVE: a relative version of the above routine.
&BBEA GRA PLOT ABSOLUTE: plot a point.
&BBED GRA PLOT RELATIVE: plot a point.
&BBF6 GRA LINE ABSOLUTE: draw a straight line from the graphics cursor to DE,HL.
&BBF9 GRA LINE RELATIVE: relative version of the above routine.
Having absorbed that little lot, you should have no problems putting images on the screen. Short of inspiration? Well type in and run the BASIC listing below. It's just the thing to take your mind of those long winter evenings and freezing cold weather...

After an initial wait of about a minute, things should get decidedly chilly. This month's challenge is to use the information from this and previous issues to code a program, similar to the one above, in machine code. You can use the same techniques, or devise new ones of your own. Either way, it's bound to be an improvement! Add whatever gimmicks you like and, who knows any particularly impressive efforts may get a small reward. (NOTE the use of the word 'small' in the previous sentence!)

Stuck with your latest machine code creation? Why not send in the details so that a solution can be found, and other readers may benefit in the process. Similarly, anyone with a good idea as to what they'd like to see in this column should also write in. Address your correspondence: Techie Bit, ACU, MSM Ltd, Panini House, 116-120 Goswell Road, London EC1.



Hex Education – part 5

Fundamental to Z80 machine code is the use of registers. Registers are very similar to BASIC variables, in that they are temporary storage areas and can have numeric operations performed on them. There are seven general purpose registers called A,B,C,D,E,H,L – each capable of storing 8-bits of information, i.e. values from 0-255. Register A, by far the most versatile, is also called the accumulator because it is used to store/accumulate the results of most arithmetic operations.

The 'load' instruction, whose mnemonic is LD, is used to place values in different registers rather like a BASIC 'LET' instruction e.g.:

```
LD A,1
LD B,45
LD C,0
LD D,128
LD E,255
LD H,9
LD L,136
```

As well as loading in numbers directly, the contents of one register can easily be loaded into another. For example

```
LD E,C
```

will place the contents of register C into register E. All the other various permutations are possible including such pointless instructions as:

```
LD A,A
LD B,B
LD C,C etc
```

I suppose these were just added for completeness!

The contents of the accumulator can also be moved to and from any desired memory location.

```
LD A,(&4000)
```

will load register A (accumulator) with the byte stored at address &4000 (16384 decimal). Note that the byte at &4000 is not deleted and will remain unchanged.

The reverse process is also possible:

```
LD (&4000),A
```

copies the value of A into memory location &4000. Register A will remain unchanged.

Two more useful instructions are INC and DEC which may be used to increment or decrement any of the seven registers by one e.g.

```
INC A
INC B
INC C
INC D
INC E
INC H
INC L
```

all increase their respective registers by one.

Similarly...

```
DEC A
DEC B
DEC C
DEC D
DEC E
DEC H
DEC L
```

will decrease their registers by one.

These instructions are fine for small changes, but very often you will need to add or subtract larger numbers. Such operations can be performed with the ADD and SUB instructions.

```
ADD A,4
```

will increase the contents of the accumulator by four, while:

```
ADD A,D
```

will add the contents of the D register to the accumulator. 'D' can be replaced by any of the other six registers, including 'A'

SUB behaves in an identical way except that the value of A will be decreased each time. For example:

```
SUB A,111
SUB A,E
SUB A,33
SUB A,A
SUB A,L
```

are all valid instructions. Note, that the results of both ADD and SUB are always stored in A – the accumulator. Because of this fact, you may sometimes see such instructions with the 'A' missing. e.g.

```
ADD 3
ADD L
SUB 91
SUB B
```

...this is perfectly acceptable and is nothing more than a simple shorthand.

Here's a brief summary of the instructions we've covered so far:

Instruction	Example	BASIC Equivalent
LD r,b	LD A,D	LET A=D
LD r,r	LD C,L	LET C=L
LD A,(addr)	LD A,(&238)	LET A=PEEK(&238)
LD (addr),A	LD (24399),A	POKE 24399,A
INC r	INC D	LET D=D+1
DEC r	DEC C	LET C=C-1
ADD A,b	ADD A,17	LET A=A+17
ADD A,r	ADD A,E	LET A=A+E
SUB A,b	SUB A,&X11	LET A=A-&X11
SUB A,r	SUB A,A	LET A=A-A

where r = any of the seven 8-bit registers ABCDEHL
b = 8-bit number (byte)
addr = any valid address 0-65535 i.e. a 16-bit number.

Bear in mind that for the BASIC equivalents shown, the letters used are variables NOT REGISTERS. In BASIC there can be any number of variables, each with a name assigned to it, whereas in machine code, there are only ever seven registers A,B,C,D,E,H,L.

More machine code fun next month!!

Bolt up and grease your trigger finger as the ACU crew gets aloft with the epic G-Loc, takes on the alien scum in Space Crusade and strings along with a right gruesome twosome in Mega Twins

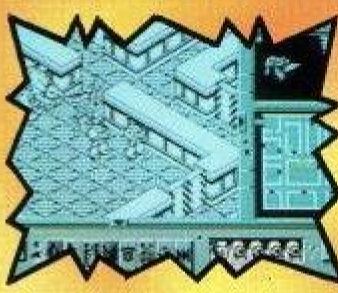
BOMB ALLEY

G-LOC



Fight in the skies for glory.

SPACE CRUSADE



Epic adventure that's out of this world.

MEGA TWINS



Dare you take them on board?

PLUS

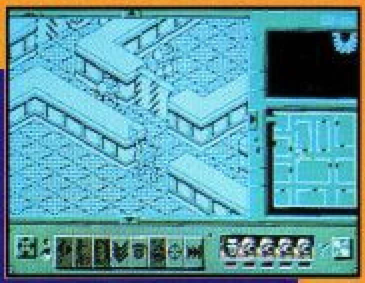
Epic compilations for Christmas to keep you blasting well into the New Year, along with all the latest news from the Budget Basement. If you can't stand the heat, you know what to do – keep out of the Alley!

TOP 20

1 (1) New Zealand Story
Hit Squad
2 (9) Quattro coin-ops
Code Masters
3 (3) Shinobi
Mastertronic
4 (2) Bubble Bobble
Hit Squad
5 (7) Moonwalker
Kixx
6 (4) Dragon Ninja
Hit Squad
7 (NE) Batman – the movie
Hit Squad
8 (8) Quattro Skills
Code Masters
9 (11) Magic Land Dizzy
Code Masters
10 (6) Cabal
Hit Squad
11 (10) Quattro Cartoon
Code Masters
12 (NE) Turbo Outrun
Kixx
13 (NE) Terminator 2
Ocean
14 (5) Dizzy Panic
Code Masters
15 (NE) Indiana Jones – Last Crusade
Kixx
16 (NE) Altered Beast
Hit Squad
17 (13) The Match
D&H Games
18 (NE) Chuckie Egg
Pick 'N' Choose
19(15) Manchester United Europe
Krisalis
20 (12) Double Dragon
Mastertronic

Last month's position in brackets





Space Crusade

Hero Quest moves into outer space for some epic extra-terrestrial adventuring.

Chaos are back! Only you and a handful of elite marines stand between them and the destruction of humanity as we know it. Fail in your missions and all is lost, so don't fail, ok?

If you have already tried the superb series of Hero Quest adventures, then *Space Crusade* is going to come as an exceedingly pleasant surprise to you. If you haven't, why not?

Using the same 2D and 3D techniques as *Hero Quest*, Space Crusade takes you high up into the atmosphere, where forgotten spaceships have drifted out of the Warp and are approaching the Earth.

Previously infested with the evil Chaos aliens, they were forgotten. That is until now! These alien hulks are corrupted with the evil forces and you, as a Space Marine, must pick your weapons very carefully before engaging them in a battle for Mankind.

All in all, there are 12 very different missions included in this first Space Crusade blast, which vary from retrieving important experimental armaments from the hulls, to setting off the ships' self-destruct sequences.

All the while, you must take on, or avoid, the ugly aliens that lurk in every corridor and room, at the same time desperately trying to outrun the vacuum which hinders or blocks your escape.

Like Hero Quest, the aim of the game is to eliminate the opposition as well as building up your own character. Saving your commander after each raid will slowly build him up into a formidable opponent. Every victory will bring Imperial Honours and important steps towards the exalted rank of Captain Senioris.

This is going to take some time, however, and you'll need all of your wits about you to survive in this atmospheric alien environment.

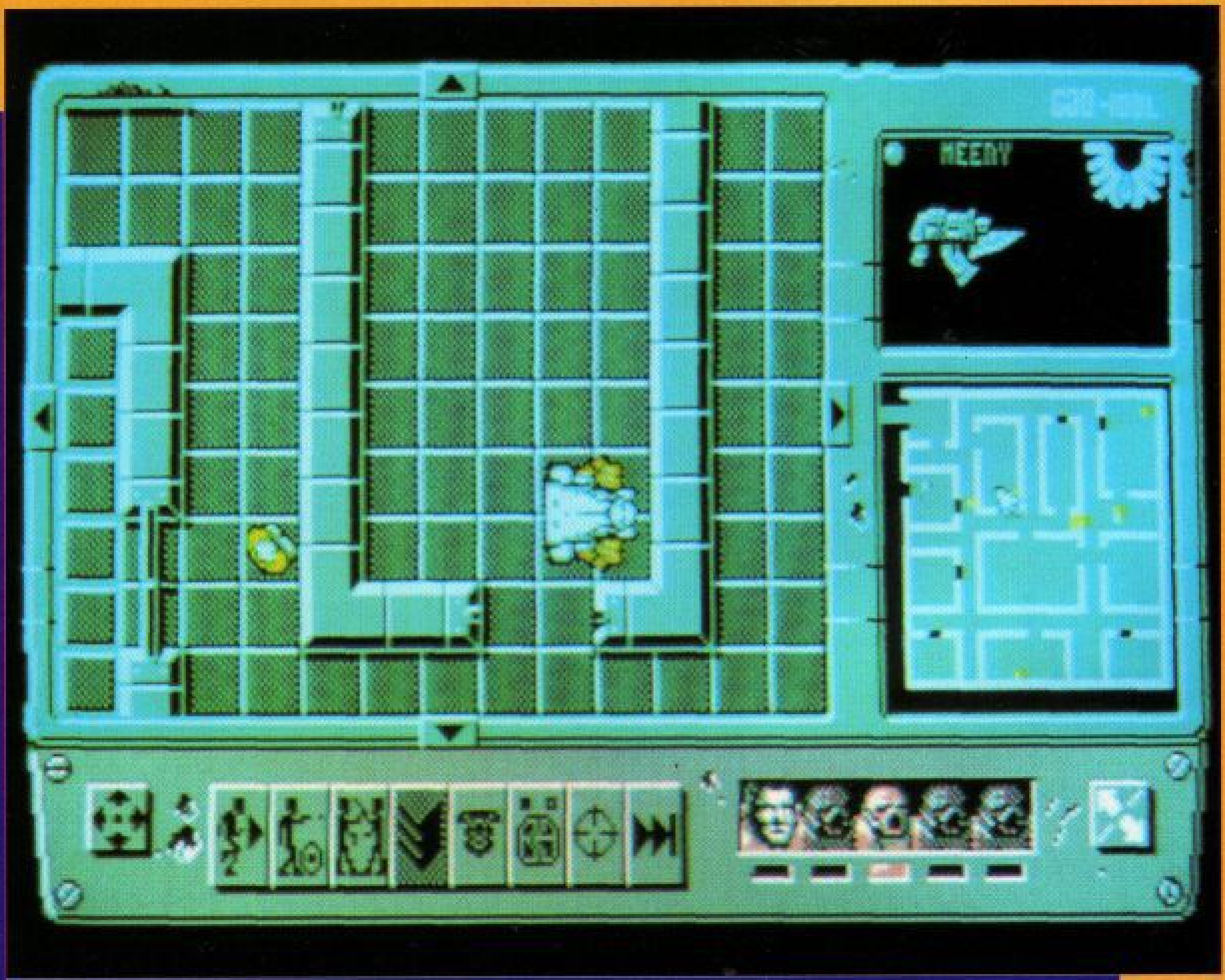
On board the spaceships, the computer controls all of the moves of the aliens, as well as the mighty Dreadnought, a machine of war more formidable than any Space Marine. Come up against it and I don't rate your chances, so just remember to be very, very careful at all times and keep a close eye on the map.

Space Crusade looks every bit as good as the fantasy Hero Quest adventures, getting you totally hooked on the gameplay from the very beginning, and offering a challenge that very few will be able to resist.

Due for release just in time for Christmas, this is one blast well worth saving some stocking space for. Look out for next month's issue, when we'll be giving it the full ACU going over but, until then, make sure you grab it when it hits the shelves and see what a mammoth offering it really is.

John Taylor

Space Crusade
Gremlin
Disc £15.99
Cassette £10.99





Final Fight

No Mayor should be expected to rough it on the streets – or should he!

Taking over as Mayor of Metro City, the last thing you expected to be doing was going out onto the streets for some dirty, no-holds-barred fighting but, as Haggar, that is exactly what you will be doing.

Designed as a one or two player blast, the aim of this little offering is to rescue Haggar's kidnapped daughter from the crazed Mad Gear Gang.

Taking on the role of Haggar, or one of his henchmen, each of which have speciality fighting moves, your task is to battle over six excruciatingly tough levels to reach the Mad Gear boss' hideout in the hotel.

Along the way, expect to meet such hideous opponents as giants, Samurai swordsmen and toughened street fighters as you battle it out along the streets, down in the subways, on the tube trains, in the industrial area and up to the hotel.

Quite apart from the frantic fist action, there are also some difficult bonus sections, which will see you smashing up cars and windows against the clock.

If you thought taking on the wrestling champ was the worst, then just wait until you reach the hotel. If you get that far, that is.

There are plenty of pitfalls that must be avoided if you want to progress and be prepared to work your trigger fingers to the bone in order to succeed in this rough and tumble offering.

To start with, getting used to the controls will take some time. The movements are a little delayed on the old joystick, so you may find yourself taking a lot of punishment.

In these days of saving money, you'll find the CPC version of *Final Fight* on one side of the disc and the Speccy version on the other.

It's hard to say whether this means less time has been spent on the development of the game for us humble 8-bit users but, the game isn't too bad as far as it goes.

The scrolling is a little jerky and the graphics are less than brilliant but, apart from that, this one is bound to please lovers of the old oriental art and conventional beat-em-ups.

On the plus side, there is plenty of action and a wide variety of backdrops and screens to keep you interested until the final showdown.

Unfortunately, it seems that we 8-bit users are being left behind a little on the games front now, so let's tell the games houses exactly what we want – more high-quality games to keep us blasting well into the New Year!

John Taylor

Final Fight
US Gold
Disc £15.99
Cassette £10.99



ROUND-UP			
NAME	Final Flight		
FROM	US Gold	PRICE	Disc £15.99 Cassette £10.99
68%	72%	68%	
GRAFFIX	SONIX	PLAYABILITY	VERDICT

Movie Premier

Four great film licences in one package. Dare you miss it?

You can tell it's nearly Christmas time when all of the compilations start flooding into the streets. This year is certainly no exception, with some superb collections to boost our playing power.

As compilations come and go, they won't get much better that this belter from Elite, which includes four stupendous classics, each top sellers in their own right, which come together to form excellent value for money and a guaranteed success for the festive season.

First up on this blast is the totally awesome original *Turtles* bash, which sees you battling it out against Bebop, Rocksteady and Shredder, in a desperate bid to rescue April O'Neil, before going on to create havoc for the bad guys.

Changing Turtle characters at will for best attacking effects, this game took last Christmas' market by storm, with the sequel set to do the same this year. If you haven't had a go at it yet, do so now!

Next up is the superb *Back to the Future II* blast, which whizzes you off to the future in a close follow on from the movie. Can You and the Doc put things strait before tea-time? Or are you going to be stuck in limbo with your whole world coming down around your ears. That, of course, depends on how well you perform.

The next offering is the excellently crafted race blast, *Days of Thunder*. Experience all the thrills and spills of big time motor racing on some of the toughest circuits in the States, as you battle it out for the top prizes and the glory.

Had enough? I hope not, as the last outing on this superb collection is the hilarious *Gremlins 2* movie licence. Catch them quick before they take over the world, or you'll be neck deep in ferocious furry things for the rest of your life.

Each of these blasts is totally addictive and very, very different. The quality of the graphics and sound effects goes without saying and, if you want something that's going to keep you glued to the screen over the long winter nights, then you'd better start queuing in the shops right now.

Due for release round about now, you won't find many better offerings on the market this year, each of the games are instantly recognisable and easy to get hooked on.

Jim Johnson







ROUND-UP			
NAME	Movie Premier		
FROM	Elite	PRICE	Disc £19.99 Cassette £14.99
92%	88%	94%	
GRAFFIX	SONIX	PLAYABILITY	VERDICT

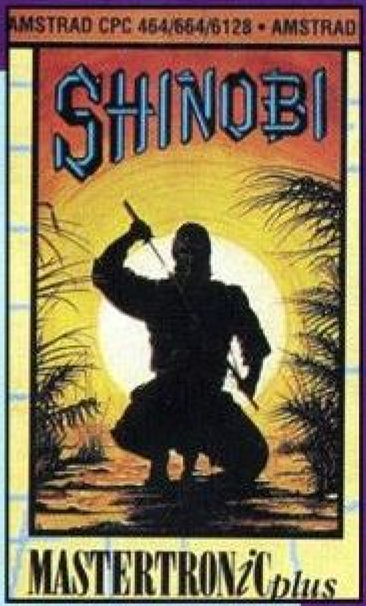


Super Sega

Compilation time again and this one looks set to thrill.

We've had some thundering Sega conversions on the old Arnold in our time, and no less than five of them grace this brilliantly put together collection from US Gold.

There can be a few of you who have yet to have a bash at the role of Joe Musashi in Shinobi but, for those few out there who haven't, this is ninja artistry at its level best. Bwah Foo, the evil Ninja magician has kidnapped the rich kids from the Ninja school and, if he doesn't get all the gold in the school coffers by Wednesday evening, it's curtains for the lot of them.



Getting to grips with all the moves and making good use of you shurikens, this is an all out action blast that'll rip you from your seats. Keep collecting the kids and make it through to the final showdown with Bwah Foo in this epic blast.

Crackdown is the name of the next offering, and this one is a real buddy-buddy two player blast, which sees you planting and setting off bombs inside the evil Dr K's fortress in a bid to thwart his plotting.

Take on all manner of ugly replicants over four increasingly tough levels in this excellent race against the clock as Ben and Andy, the freedom fighters.

If swashbuckling swordplay is your scene, then you'd better get to grips with the Golden Axe, a desperate battle for the future of Yuria against the evil scourges of Death Adder.

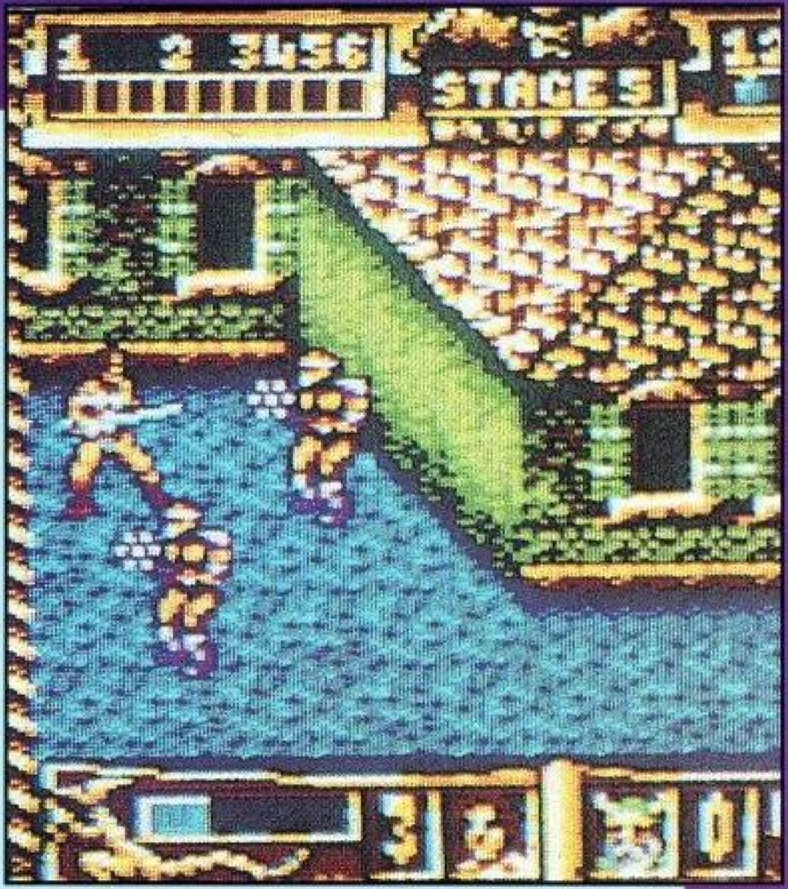
Taking on the role of either Ax-Battler, Gilius Thunderhead or Tyris-Flare, you and a friend must travel through spook and skeleton infested woods, the Turtle Village, Eagle Island and the Castle, in your bid to wrest the all-powerful Golden Axe form Death Adder's grips.

Certainly not for the fainthearted, this one, with confrontations with death at every corner and all manner of beasts to ride and/or overcome. Excellent stuff.

E-Swat sees you roughing it on the streets as a regular SWAT member, battling to prove your worth as a prospective member of the elite E-SWAT wing of the cyberpolice. Take on every baddy you come across, armed to the teeth with your duo-laser cannons and exo-suit and bring every punk in the city to his/her knees. Go get 'em folks!

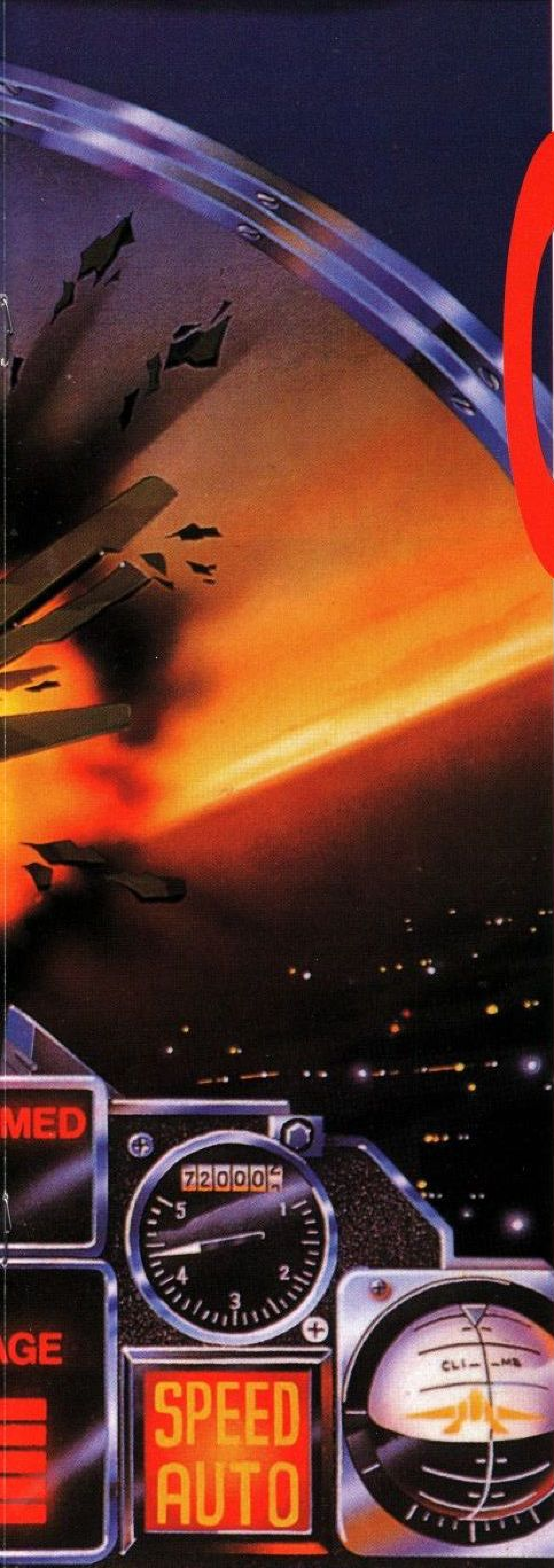
Last up is the excellent race outing Super Monaco GP. Pick your gear ratios and get set for some blistering tarmac spills as you race to beat the qualifying times over three world class tracks, before getting to grips with the real thing at Monaco. Each game is a masterpiece of software development, featuring great graphics and superb playability, coming together to form what must be an absolute necessity for the serious games player. Not to be missed.

John Taylor



ROUND-UP			
NAME	Super Sega		
FROM	US Gold	PRICE	Disc £19.99 Cassette £15.99
90%	88%	94%	TNT
GRAFFIX	SONIX	PLAYABILITY	VERDICT


AMSTRAD COMPUTER USER GOLD AWARD
AR
COMP
F. WING
R.WING
ENGIN
FUEL
DAMA
FUEL
RADAR



G-LOC

It's a suicide job, but somebody's gotta do it!

You'd better keep a check on your surroundings, Buddy, because this time your on your own, and I mean on your own.

Set over 38 thrill-packed levels, *G-Loc R360* takes you up against an entire enemy force, with only your wings between you and certain death.

Don't worry over much to start with though, as first of all, you get the chance to take part in a comprehensive nine-stage training course, designed to test your skills to the limits and to see if you've got what it takes to go all the way.

Get through that little lot if you can, and you're still not considered worthy of going the whole hog so, next up, you're up against 13 stages of lightning speed, reflex-testing aerial combat.

Get used to the feel of the aircraft and make sure you get the most out of your afterburners to tear your way through these excellently devised confrontations.

If you're still on the ball after all this, then you're in the big league and ready to take the battle to the big boys. The final conflict has you taking part in no less than 16 stages of fierce dog fights.

Use your twin rapid fire machine guns to blow away the enemy, as well as your on-board guided missile system. An excellent on-board screen display helps you keep track of the enemy FX 85 tailgaters at all times, while swift manoeuvring with your afterburners and loop the loop will bring them right into your targets.

Jam packed with pulse pounding excitement, the graphics look superb from what I've seen of it so far and G-Loc looks set to be an absolute winner. If it's high-speed action you're after, you've picked the right blast, as it has to be one of the best air sims around for a long time. Keep your eyes peeled for it and grab it when you can.

G-LOC
US Gold
Disc £15.99
Cassette £10.99

Capcom Collection

Value for money is the name, action is the game.



If you're looking for something that's going to keep you busy for a fair few hours, then look no further than this epic collection of Capcom from US Gold.

Each of the blasts in this compilation are instantly recognisable names, each guaranteed to glue you to the screen and offering as much variety as you could ask for in one go.

There's not much room on one page to take you through a guided tour of each of the offerings on this collection, so just take a look through the names and you'll see that value for money is guaranteed.

Not only do you get the original Strider blast here, but you also get the sequel, Strider II, as well. If you know this one, then you'll know that the graphics are a treat, as you take on the alien forces, armed only with your sweeping net of death.



US Squadron takes you up into the skies, battling it out with the latest in high-tech weaponry against some formidable enemy positions. Excellent graphics make this one shoot-em-up you won't forget in a hurry.

If it's shoot-em-ups you're into, then you won't want to miss Last Duel while you're about it. Take on a friend in some real fast blast action in this head-to-head challenge to set your pulse rate racing.

Also included in the list is one of the best arcade conversions of the year, Forgotten Worlds. Extra-terrestrial adventure is at its level best here as you take on some of the ugliest beasts around to save the day.

If you like racing, then try a trip out on LED Storm, a futuristic speed offering with a difference. Totally addictive and guaranteed to keep you glued til the finish line.



On a totally different note, Dynasty Wars sees you entering the world of oriental combat arts in a big way, featuring a superb scenario and some truly atmospheric sound effects as you fireball your way through the bad guys.

Last, but by no means least on this epic collection, is the classic Ghouls 'n' Ghosts. A true classic of a game which sees you wandering through the graveyards, armed with daggers or sword, taking on all manner of zombies and ghoulies on your travels.

I think you get the drift of what I'm saying from that little lowdown. There's an awful lot on offer in this amazing compilation. There's certainly something for everyone and with these names on board, quality is guaranteed from the very start. Whatever you like in a game, it's sure to be included here somewhere, so go out and reserve your copy now.

Jim Johnson

ROUND-UP			
NAME	Capcom Collection		
FROM	US Gold	PRICE	Disc £19.99 Cassette £15.99
89%	88%	92%	
GRAFFIX	SONIX	PLAYABILITY	VERDICT





Mega Twins

Join in as the daring duo set out to avenge their people.

Get set for a beat-'em-up of epic proportions as you take on the roles of the fabulous *Mega Twins*, battling to restore peace to their beloved land of Alurea.

For over 1000 years, the people of this marvellous land had lived without warfare, forgetting completely how to go about defending themselves. So, not surprisingly, it came as rather a shock to them when a terrible monster came down in their midst, decimating everything in its path.

In fact, so horrendous were the ravages of this beast, that only two people survived the destruction of the country – the king's twin sons.

Now, 15 years later, you must take on their personas and set out on a desperate quest to revenge your father's death. The only way order can once more be restored to Alurea, is by getting possession of the legendary Dragon Blue Eyes stone.

Of course, the stone is now being held by the big bad beastie, so you can be sure that your quest to reawaken your people is not going to be an easy one.

As the daring duo, get set to battle your way through six gruelling and totally different levels of arcade action. Just to give you a taste of the variety in store, you get to take on the beast's evil henchmen on land, in the air and underwater to boot, so make sure you've packed your flippers before you set off on your adventure.



The controls are pretty easy to get the hang of and it won't be long before you're despatching with the bad guys in no small manner. In fact, from the very beginning, doing just that is enormous fun. However, don't forget that at the end of it all, the big, bad beastie is waiting for you. Try to conserve your energy at all times, and don't forget to pick up as many power-ups as you can along the way, you're going to need them.

There is plenty of colour in this blast and the graphics are certainly worth a look at.

If you like a good sound track and plenty of special effects, Mega Twins won't disappoint you either.

All in all, this is one blast that has to be seen to be properly appreciated. The graphics are excellent and the gameplay is totally addictive at all times.

If you're looking for that extra something to fill your Christmas stocking and keep your trigger finger happy, then look no further than this superb offering from US Gold.

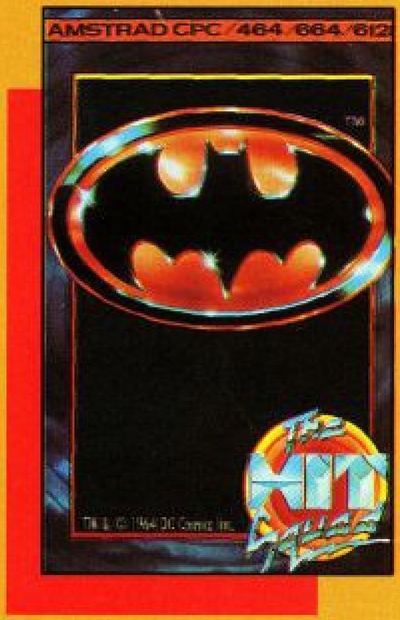
Jim Johnson

Mega Twins
US Gold
Disc £15.99
Cassette £10.99

ROUND-UP			
NAME	Mega Twins		
FROM	US Gold	PRICE	Disc £15.99 Cassette £10.99
89%	82%	87%	TNT
GRAFFIX	SONIX	PLAYABILITY	VERDICT

Budget Basement

All the latest cut price blasts on the market and some exciting news to boot!



BATMAN

Bruce Wayne is out and about again, taking on the evil Jack Napier, alias The Joker, in this splendid outing from the Hit Squad.

Level 1 sees you battling through some dirty henchmen, as you fight your way to the exit of the factory. Use your Batarang and Batrope carefully to make good your escape, before going on to rescue Vicky Vale from the Flugelheim Museum.

Next you're out on the streets in the Batmobile, racing to avoid the police and the Joker's vehicles. Clever use of the grapnel will enable you to corner at lightning speeds, as long as your timing is right.

Back in the Batcave, some serious formula busting is required to thwart the Joker's evil plans, before emerging back onto the streets again to battle it out with the noxious balloons.

Make it through to the final confrontation in the Cathedral and you've certainly earned your Brownie points, in this fast moving, well-defined action blast. Well worth getting hold of if you didn't try it out on the full-price version.

TURRICAN

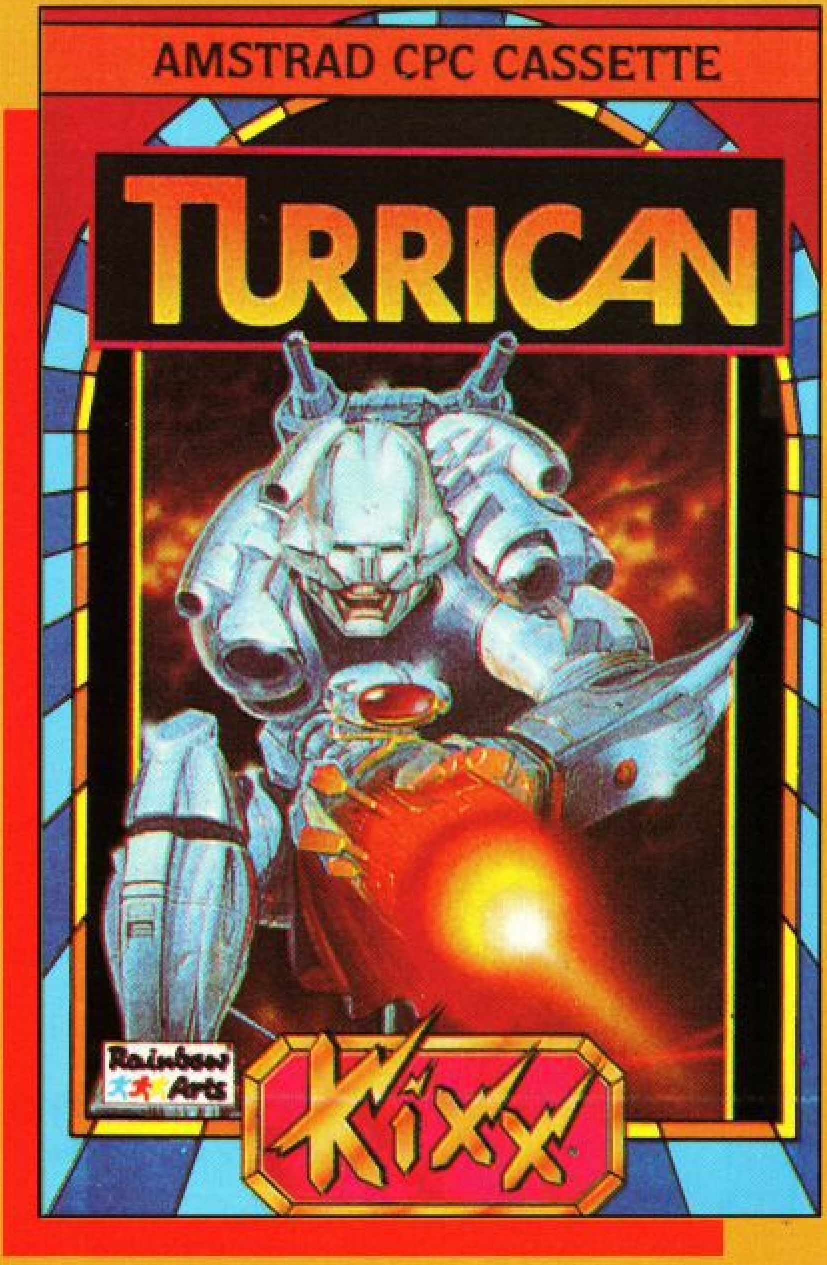
Roll up superheroes and get set for a blast-em-up of epic proportions. On the full-price side, Turrican was a roller-coaster success, and I see no reason why it shouldn't repeat that on the budget side.

The evil tyrant Morgul has returned to his secluded kingdom, bringing terror into the hearts of the poor citizens. Only one man can banish the evil from the land once more, and that is you in the form of Turrican.

Armed to the teeth with all of the latest hi-tech weaponry, you must take on Morgul's minions over five totally different worlds. Three of the worlds spread over three levels, with the remaining two set over two. As you can see, there's more than enough room for action and, boy, you're going to get it.

At all times, you must scout around for power-ups and bonusses, you'll certainly need them against some of these bad guys.

Superb graphics and some very atmospheric sound effects make this blast one not to be missed if you know what's good for you. Activate your mines, send out your flashes, use the mega-fire option, just do anything to rid the world of Morgul. And remember to come back a hero!



HEROES OF THE LANCE

There's a whole lot going on on this little cassette and, if you like your adventuring on the epic scale, you'd better nip out, buy it and join in now.

As part of the Official Dungeons and Dragons series of computer blasts, you can reckon on things getting pretty hairy out in the land of Krynn.

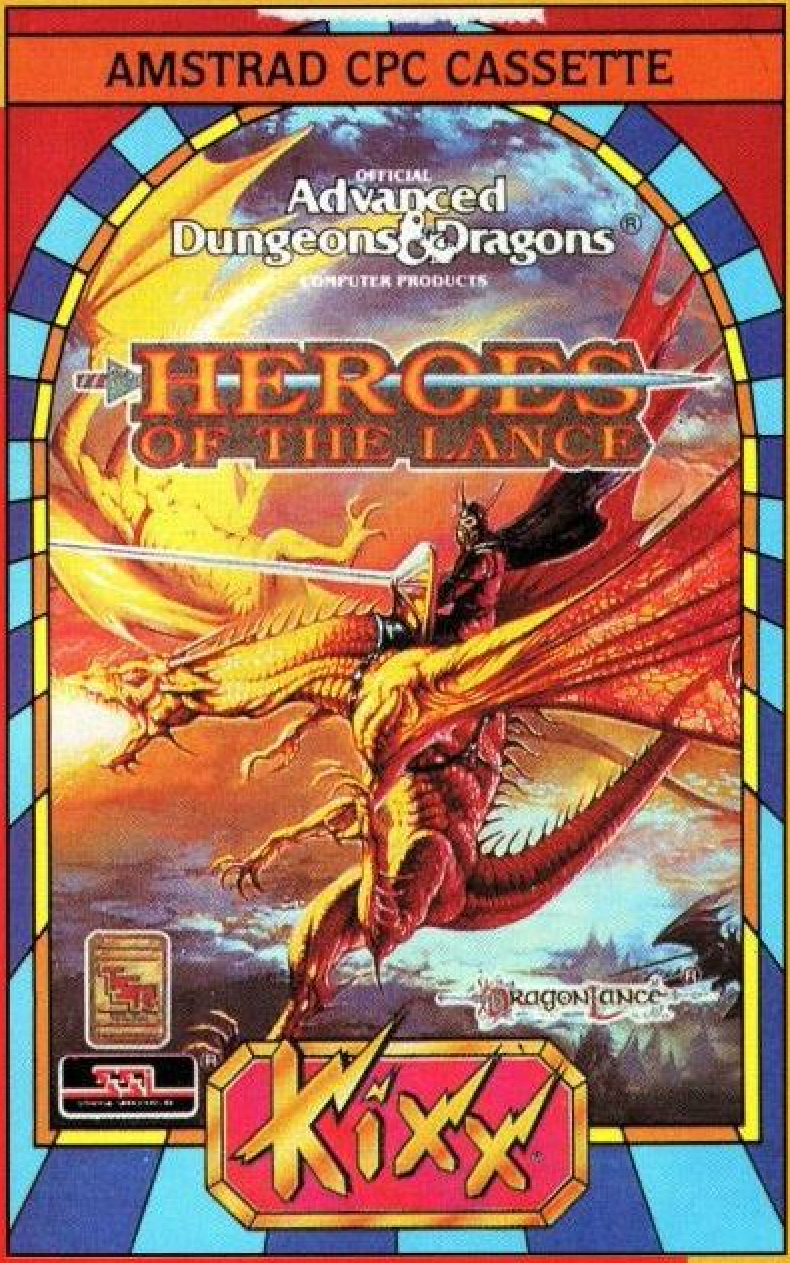
Basically, the evil Queen of Darkness, Takhisis, has gotten hold of the old icons of the gods, the Disks of Mishakal, which maintain the balance between good and bad. Unless somebody can go out and recover those icons, things are going to get very rough for the local people, who have lost their belief in the good gods.

What your task is, is to rescue the disks and use their power to influence the people back into belief. Only by doing this can they come to oppose the Queen of Darkness directly, and restore balance to the land of Krynn.

How does that sound to you? Complicated? Well, it doesn't end there. The disks aren't just lying in the dust, they are being guarded by Khisanth, an ancient dragon, served by the Draconians, who have enslaved the local Aghar dwarves.

So, what have you got? An awful lot of opposition if your quest is going to succeed. Using the usual D&D techniques, you must control your characters qualities to the foremost, becoming an invaluable member of the Companions of the Lance. Keep your eyes on the sub-menus to see how your character is faring at all times, so that you don't leave your fellows in the lurch.

Controlling the figures may take some getting used to, but all in all, this is a beautifully crafted offering, featuring all of the ugly beasties you'd expect from a D&D blast. Take on the baddies, pick up potions and



scrolls and remember to save and load at critical moments, to ensure continued play.

If you like adventure, you'll love this and, even if you don't, it's got to be worth a try to see what you've been missing out on. Long live the Heroes!

X-OUT

Here comes yet another awesome shootie, hot off the shelves to keep you well and truly warmed up over Christmas. Guaranteed to get your trigger finger itching and an absolute must for serious blasters.

Coming from the depths of Alpha Centauri, the alien beasties are now entrenched in the depths of our own oceans, killing off everything that comes within the vicinity.

Roll up project Deep Star, the ultimate in sub-aqua weaponry, specially designed to take on the might of the alien power on the bottom of the sea. Think you can cope with all of this excitement? You'd better, because you are the last hope.

Over 160 screens of furious shooting action lie ahead of you as you set out, teeming with some of the toughest aliens you've ever seen. There are eight levels in all, along with the chance to come up against 40 different types of mutant scum. Relish this one boys and girls, they don't come much better!

Using some spectacular graphics techniques, look out for up to 50 objects on screen at any one time. If you can keep your concentration through that lot, you're doing fine. As you progress, keep your eyes peeled for the different hostile environments of fire and lava, and remember to scout for the extra weapons first and foremost. You'll need them all!

As a horizontal scroller, you really can't beat X-Out in the action stakes. The sound effects are superb and the gameplay is guaranteed to glue you to your seat for many an hour.

Keep improving your ship as you progress and enjoy what really is a corker of a game.



WHAT'S NEW?

Looking through the latest updates, you can expect some more epic releases from Kixx very shortly. Just as a brief foretaste, how do Stunt Car Racer and Rick Dangerous grab you? They do? Good, because they should both be out on the street before the Christmas festivities commence. Both totally different, yet equally brilliant blasts, you could do far worse than put them down on the pressie list.

Keep your eyes peeled on the shelves, as they are not long in coming now.

Moving on to a larger scale, the excellent news from Code Masters, is that they have yet another collection in the pipeline and this one should be out before Crimble time as well.

What is it? It's the Cartoon Collection, featuring some stunning blasts from the past, as well as the obligatory Dizzy.

Latest rumours have it that the compilation consists of Little Puff, Slightly Magic, Spiky in Transylvania and Seymour goes to Hollywood, with the Dizzy offering yet to be decided.

Going out at the marvellous price of just £9.99, this is one collection that really shouldn't be missed and should guarantee another best-seller for those Codies. For more information on this epic offering, keep your eyes peeled to these pages in the next issue, where we should be able to give you the full lowdown.

Ok, that's it for this month, but you can be sure that we'll be back with more blistering budget news in the New Year. Just remember to have fun, don't eat too much and try not to wear out your new joystick before Boxing Day! Merry Christmas.

Jim Johnson

Batman	Hit Squad	£3.99	86%
Turrican	Kixx	£3.99	92%
Heroes of the Lance	Kixx	£3.99	89%
X-Out	Kixx	£3.99	96%

FIVE ALIVE

Mr H takes a walk along the waterfront and brings you some solutions to ease those winter blues.



Ah! 'Tis that time of year again, when we can all look forward to stuffing ourselves silly with turkey and lounging about in the afternoon, trying to concentrate for the umpteenth time on the Bond movie, or Star Wars, but not quite being able to because of dad's snoring in the background.

You know it well? Yes, it's nearly Crimble time and I wonder what goodies you're all going to get in your sacks this year. Have you all been good? None of you, I'm sure, have had to stoop to using any of the humble hacking pages to reach the high scores. Or have you?

Never mind. Santa doesn't look too unkindly on us humble hackers, who just want a little satisfaction from the deviant mind of the games programmers. That said, I think it's high time I supplied you with a couple of multiface pokes to help you hit those high scores before Twelfth Night.

These little goodies are from David Long and they're certainly long on the lives front.

Well, I think David's certainly poked the living daylights out of *Elite,* so if any lucky Multiface user out there has still got problems getting to grips with it, I'll want to know why!

David has also supplied us with a couple of handy keypress pokes, so try these for size on your next outing. Typing in BRINGONTHEGIRLS on the title screen of *Stormbird,* you can then decide which level to start at, simply by typing in 1, 2, 3 or 4. Couldn't be simpler, though the password is decidedly dodgy, don't you think?

When you manage to reach the high score table of *Eagles Nest,* the following type-ins should bring pleasant results. DAS CHT gives infinite health, DAS MAP gives map mode, DAS NME does away with the enemies and MAP OFF does exactly what it says. That should take the hardship out of that little offering.

Now then, before I leave you in the capable hands of Graham Smith and his amazing poke parade, I have in my possession a handy little guide to some of the trickier parts of the Famous Five blast, *Five on a Treasure Island.*

Now, to help you out, you need to examine the bed in Aunt Fanny's room to find some matches. The torch you'll need is in the store room under the stairs, while the rope is in the garden shed. Apparently, you must then send Anne north and take on her role to enter the dining room. Joanna should get the oven gloves, which you'll need to rescue Timmy from the bushes on Kirrin Island. Wearing the oven gloves to pull up the bushes will reveal the entrance to the well shaft.

Got all that? Well, it might help you out a little if you're stuck near the beginning. If you want to know more, then you know where to write.

Ok, now it's on with the pokettes and the first little gem à la Smith, is for the tape version of *Superkid.* Pop it in, run the game and you should be able to run amok with infinite lives to boost your playing power. Now that's what I call super, Kid.

Next up is a little something for that incomparable blast, *Blazing Thunder.* Again, like most of Graham's pokettes, it's for infinite lives and should cause the opposition a real scare. Go get 'em!

GAME	POKE	ADDRESS	EFFECT
Fast Food	570C	00	Infinite lives
Shinobi	0F62	00	" "
R-Type	927B	A7	Infinite credits
Combat School	042C	0A	Slows timer
Elite	4F02	00	Infinite fuel
"	382D	00	Infinite missiles
"	7AA8	00	1 hit destroys ships
"	787C	00	Indestructibility
"	7B61	00	"
"	6E63	C3	"

```
1 ' Superkid (tape)
2 ' By Graham Smith
3 ' Infinite lives
4 '
10 DATA 06,00,11,7e,80,cd
20 DATA 77,bc,21,70,00,22
30 DATA ef,80,eb,e9,af,32
40 DATA 7d,14,c3,7a,18
50 FOR j=0 TO 22:READ a$
60 x=VAL("&"+a$):y=y+x
70 POKE j+96,x:NEXT j
80 IF y<>2514 GOTO 100
90 MODE 1:CALL 96
100 PRINT"data error
```

```
1 ' Blazing Thunder
2 ' By Graham Smith
3 ' Infinite lives
4 '
10 DATA 11,00,88,43,cd,77
20 DATA bc,21,6f,00,22,6c
30 DATA 88,eb,e9,3e,a7,32
40 DATA 4a,4d,c3,50,80
50 FOR j=0 TO 22:READ a$
60 x=VAL("&"+a$):y=y+x
70 POKE j+96,x:NEXT j
80 IF y<>2455 GOTO 100
90 MODE 1:CALL 96
100 PRINT"data error
```

Why not dig out *Salamander* and have another bash at it using this excellent poke to enhance your battle tactics. Load it in for a giggle, you won't be disappointed.

```
1 ' Salamander (Hit Squad)
2 ' By Graham Smith
3 ' Infinite lives
4 '
10 DATA 21,16,bd,36,c3,23,36
20 DATA 0e,23,36,be,c3,a0,99
30 DATA 21,17,be,22,d9,a7,c3
40 DATA 08,a5,cd,40,a7,21,21
50 DATA be,22,5a,a8,c9,3e,21
55 DATA 32,c1,60,c3,b0,03
60 FOR j=0 TO 40:READ a$
70 x=VAL("&"+a$):y=y+x
80 POKE j+48640,x:NEXT j
90 IF y<>4408 GOTO 120
100 MEMORY 33333:LOAD"
110 CALL 48640
120 PRINT"data error
```

```
1 ' Solar empire (tape)
2 ' By Graham Smith
3 ' Infinite lives
4 '
10 DATA 11,00,20,43,cd,77
20 DATA bc,21,f2,be,22,80
30 DATA 20,eb,e9,3e,a7,21
40 DATA 00,18,32,44,03,32
50 DATA b4,2e,22,7a,d1
60 FOR j=0 TO 28:READ a$
70 x=VAL("&"+a$):y=y+x
80 POKE j+48867,x:NEXT j
90 IF y<>2803 GOTO 110
100 MODE 1:CALL 48867
110 PRINT"data error
```

```
1 ' Hawk Storm (tape)
2 ' 64K version
3 ' By Graham Smith.
4 ' Infinite energy
5 ' Infinite bullets
6 '
10 DATA af,32,29,20,32,9a
20 DATA 21,32,26,2d,32,87
30 DATA 2f,32,20,35,32,63
40 DATA 38,c3,18,0e,11,00
50 DATA 01,43,cd,77,bc,21
60 DATA dd,00,22,66,01
70 FOR j=0 TO 34:READ a$
80 x=VAL("&"+a$):y=y+x
90 POKE j+221,x:NEXT j
100 IF y<>2461 GOTO 120
110 MODE 1:CALL 243
120 PRINT"data error
```

Hawk Storm, if I remember rightly, was a superb gem of a game and, with this extremely useful little cheat, you can do even more damage than you did the last time you had it out. This one will give you infinite energy as well as bullets, so don't think about sparing any, just get blasting. It's for the tape version, so get spooling now.

Last in this month's list is something for the tape version of *Solar Empire*. If you want to make it to the top, you've got to be prepared to take a few cheats on board with you, after all, that's the way it is in real life too!

Well, I think that should keep your blasting prowess properly greased for a little while. In the meantime, I'm off to sample the delectations of this year's Christmas offerings. Try them for yourselves and, don't forget, if you're stuck on a game, or if you've worked out a wonder-solution, poke, hack, or whatever, drop me a line and let me know. Either I can help you, or you can share your triumphs with the rest of us.

In the meantime, just be careful when you tuck into your Christmas fare and remember, keep away from that Napoleonic ice cream! You know the stuff I mean, that tri-coloured stuff, as it can lead to all kinds of problems; delusions of grandeur, a shortening in stature and you might even find your trigger arm dwindling to boot. You have been warned. Happy Christmas from Hackland.

NEW - 3.5" SUPERDRIVE - £79.95

★ 800K STORAGE PER DISK ★ FREE MS800 or FREE MAXIDOS - YOU CHOOSE

We were the *first* to bring the 3.5" drive below £100
We were the *first* to bring you the Dual-Mode 3.5" drive
We were the *first* to give you 800K software - free!
And now we are the *first* to bring you the ***SuperDrive.***
Others may follow but WE LEAD THE WAY

The ***SuperDrive*** is still the most reliable (TEAC), still the most compact, still the quietest and still has the best free software. It is still Dual-Mode and, because no additional software is needed to store up to 800K per disk (MS800 is free), it is ***still the lowest cost 3.5" CPC drive!***

NEW - a set of 5 indicators display the various states of the drive. Some are used immediately and some are for further expansions - *see FEATURES.*

The ***SuperDrive*** is ready to plug in and use. Nothing else is needed except a few blank disks. Please state 464, 664, 6128, 464+ or 6128+.

***SuperDrive*........£79.95**
plus £3 p&p

N.B. This drive is *not* suitable as a 464 first drive.

FEATURES:

★ 800k per disk when used with MS800 (free), RAMDOS, ROMDOS or Rodos
★ Low cost disks
★ DUAL-MODE. Mode 1 - *SuperDrive* is a complete alternative B drive
Mode 2 - It is also a megadrive (800k per disk)
★ LEDs indicate which disk side is in use (3.5" disks don't turn over)
★ LEDs show whether it is selected as the A or the B drive when used with our ABBA SWITCH[2] (not DeCable) which plugs onto the disk drive port to allow the internal (A) and the external (B) drives to be switched around
★ LED shows when the drive is selected - active when used with our 3rd DRIVE SWITCH[2] which plugs on to the disk drive port and allows the connection of 2 external drives, only one of which can be in use at any one time. The switch selects which one. Can be switched while the computer is turned on so B to B copying can be done.
★ SIDE SWITCH switches the disk side and permits mode 1 operation
★ PSU is external and easily replaced should the need arise. The alternative is an internal PSU and a costly, specialised repair.
★ COMPATIBLE with all 800k software
★ COMPATIBLE with almost all computers. The *SuperDrive* can go with you if you change computers. Only a different connector or lead is needed.

[2]The ABBA and 3rd DRIVE switches are optional extras (£10.95 each) and do *not* need to be used. To accommodate possible future needs, their LED indicators are fitted to the *SuperDrive* as standard. The switches are available for the 664, 6128 and 6128+ computers and will shortly be available for the other CPC's.

NEWS

With the introduction of the SuperDrive, the ABBA SWITCH and the 3rd DRIVE SWITCH, all announced in this advertisement we haven't exactly been idle during the summer months. But we've gone even further to provide you with the best of service. We've actually gone on-line.

Between the hours of 7pm and 6am, our new Bulletin Board, Supe's Motel, is available for those with comms. It uses our business number and can be used to make enquiries and to download very full details of our products. Three other boards also have MicroStyle areas and messages left on any of them are networked to the rest.

Supe's Motel	0274 602180	1 2 0
2400		
The Smallest BBS	0905 613966	3 0
2400		
Clapham Junction	0234 364261	1 2 7
2400		
Preston ROS	0772 652212	1 2 7
2400		

all are 8N1 and scrolling.

Supe's Motel is the centre of the network. Looking more like an adventure game than a BBS, it has a lot more than the Microstyle area. For instance, there's a swimming pool, a massage parlour, a bar, a Bridal Suite, a dating agency and, in a more serious vein, there are sections on astronomy, CPC, PCW, sales/wants and more. The nature is light hearted and role playing is encouraged so don't be surprised by a very stern warning coming your way if you're caught skinny dipping in the pool.

BONZO UPDATES

Bonzo Super Meddler and Bonzo Blitz users can get regular updates from PLAYMATES, a quarterly fanzine. As well as Bonzo's litter tray, the fanzine includes plenty of clip art, Multiface pokes, cheats and reviews. S.A.E. to: Playmates, 37 Fairfield Way, Barnet, Herts, EN5 2BQ.

PUBLIC DOMAIN

PD software may be freely copied and distributed provided that: it has not been altered in any way, all associated files are included an *no charge is made for the software.* The authors retain the copyright. The only charges allowed by the authors are expenses which can include a disk/tape, p&p and a little for equipment/labour. Anything more than that is selling the software itself and is an infringement of copyright. We believe that all libraries mentioned in this column adhere to the rules of Public Domain but we know there are some that don't so watch out for those prices.

Two libraries for you this month, an oldie revisited and a newie (to us).

ADVENTURE PD specialises in CPC adventure games and now has over 60 of them. They even have two disks full of solutions. The charge is £1 per disk (not including the disk itself). S.A.E. to Adventure PD, 10 Overton Road, Abbey Wood, London, SE2 9SD.

DARTSMA PD LIBRARY claims to be the cheapest disk PD around. A mere 50p plus disk and S.A.E. gets you 2 selections from over 40 disk compilations. Programs include clip art, animations, games, demos, a DTP and many utilities. S.A.E. for stock list or S.A.E. plus disk for full list, sample programs and a magazine to: Dartsma PD Library, c/o Adam Shade, 47 Kidd Place, Charlton, London, SE7 8HF.

PHONE YOUR ORDER TODAY
GOODS DESPATCHED TOMORROW
phone Mon-Fri, 2pm-6pm

MS800 - the standard in 800K storage - £9.95
(supplied free with the SuperDrive)

MS800 enables the Dual-Mode disk drive to store up to 800K per disk. Since we introduced it earlier this year it has become the best selling software of its kind by far. So much so that many people have converted their earlier 3.5" drives to dual-mode capability and switched to MS800. As one user put it "...MS800...knocks spots off Rodos" and we have had similar comments concerning the other alternatives.

FEATURES INCLUDE:
360K, 400K or 2 x 180K per side; compatible with CPCs, PLUSes, CP/M+, MFII, Stop Press, etc.; 64 or 128 directory entries; verify disk; disk copy; file and batch copy; unlike all alternatives, each disk initialises the computer for its own format without using up any of the storage space! Once a disk has been formatted, MS800 itself is not needed.

Formatting up to 400K on each side needs a SIDE SWITCH on the drive. Our drives already have one but for £3 we can supply a kit and instructions - suitable for 80 track, double sided 3.5" or 5.25" disk drives.

MAXIDOS (with free PROCOPY) £13.75
THE MOST COMPREHENSIVE & EFFECTIVE GENERAL DISK UTILITY AVAILABLE FOR THE CPC

Fully compatible with RAMDOS, ROMDOS, AMSDOS and CPM formats!
COPY files/disks; **VERIFY** disks; **RESURRECT** erased files; **FAST FORMAT** Amsdos/Ramdos/Romdos; **IDENTIFY** format; **CAT** files (inc. erased ones) optional status/address/length/etc; alter **USER AREAS,** make/unmake system or read only, **DISPLAY** or **PRINT** files...**AND MUCH MORE! BEST SECTOR EDITOR EVER** for the CPC. All standard editing facilities **PLUS FILE MAPPING** to screen or printer, auto step by step movement through a file, string and byte **SEARCH** through file/disk.**FILE ARCHIVER** backs up disks to tape: variable baud rates. **SPEED UP YOUR DISKS!** unique OPTIMISE re-arranges your 'crowded' disks, making them load **up to 50% faster.**

BONZO SUPER MEDDLER £13.75
now includes the BONZO HACKPACK - *free!* The most comprehensive tape to disk utility. Supplied on disk with a huge database of verified transfers. Produces stand-alone transfers.
"A real alternative to a Multiface" - Amstrad Action
"The best tape to disk transfer utility available" - WACCI

BONZO BLITZ................................£13.75.
now includes BONZO'S DOODAH *and* **4 adventure games -** ***free!***
Tape to disk transfers. Deals with all forms of Speedlock. Works on all CPCs. Huge database of verified transfers.

BONZO's BIGBATCH.......................£10.00
Fast, flexible DATABASE, superb FOOTBALL POOLS PREDICTOR plus a user-friendly, memory saving SCREEN & SPRITE DESIGNER.

BONZO's FLASHPACK.....................£10.00
"The best all round BASIC extension program" WACCI. FLASH BASIC adds about 70 extremely useful RSXs to use in your BASIC programs but the resulting programs will run on any computer *without the presence of FLASH BASIC.* Includes a database and other excellent example programs.

6128 ROMS £24.95
includes fitting instructions

FILE TRANSFERs -
cpc TO/FROM PC's, PCW's and Others

2IN1 - £24.95
Moonstone's 2IN1, the Rolls-Royce of CPC/PC file transfer utilities, not only allows the transfer of files by copying to and reading from PC disks but it also allows the same data disk to be used in both machines. FORMAT, COPY, CAT, IDENTIFY FORMAT etc. PC disks on your CPC. Full range of utilities - fully menu driven. When compared to the rest AA said *"Quite simply, it knocks the competition into a cocked waste paper basket".*

MFU - £29.95
Transfers files easily to and from PC's, various CPM format machines (e.g. PCW), BBC's, Osborne and other computers. Its PC transfer is the basic 2IN1 program but without all the facilities. When MFU's PC transfer capability was compared with all the alternatives (except 2IN1), it was judged by AA to be *"head and shoulders above the rest".*

GENERAL
If you just want PC transfers then 2IN1 is by far the best. If you also need transfers to/from the other machines, then MFU is the one to have. Both programs run in CPM+, not in CPM 2.2.

OTHER ITEMS

64k DKtronics RAM PACK	38.99
FD1 DISK DRIVE (See below)	54.95
RAMDOS (disk)	19.95
ROMDOS (rom)	29.95
6128 ROM	24.95
3.5" DISKS (branded bulk)	10 for 7.50
	30 for 20.00
3" DISKS (Amsoft)	10 for 20.00
3.5" DISK BOX lockable, holds 40	7.00
PRINTER LEAD (CPC or PLUS) 6'	8.00
ABBA Switch	10.95
3rd Drive Switch	10.95

Please add £3 p&p to disk drives
FD1 - state 464, 664, 6128 or 6128 PLUS

32k RAMROM
£13.95!!

The RAM that thinks it's a ROM is a little gem. It is 32k of RAM which can be loaded with 1 or 2 (yes two!) ROM programs. After which it behaves exactly like 1 or 2 ROMs. It plugs onto the computer so a romboard isn't needed. You can select a rom slot for each 16k bank or choose to have both banks on the same slot switching between them at will. Complete with through connector and type-in software, it is now available for an amazing £13.95. Send s.a.e. for fuller details or a cheque to get yours now.

464 PLUS/6128 PLUS ADD-ONS

Bonzo Blitz	See Above
Bonzo Super Medler	See Above
32k RAMROM	See Opposite
FD1 3" B drive (464 & 6128)	£59.95*
3.5" B drive (464 & 6128)	£79.95*

See above for full details

Printer lead (6ft)	£8.00
Plus to edge adaptor	£8.50

Allows CPC add-ons to be used on the PLUS computers
*Please add £3 p&p on disk drives
PLUS OWNERS WATCH THIS SPACE
We will add more items for your computer as quickly as we test them.

VISA Access

MICROSTYLE

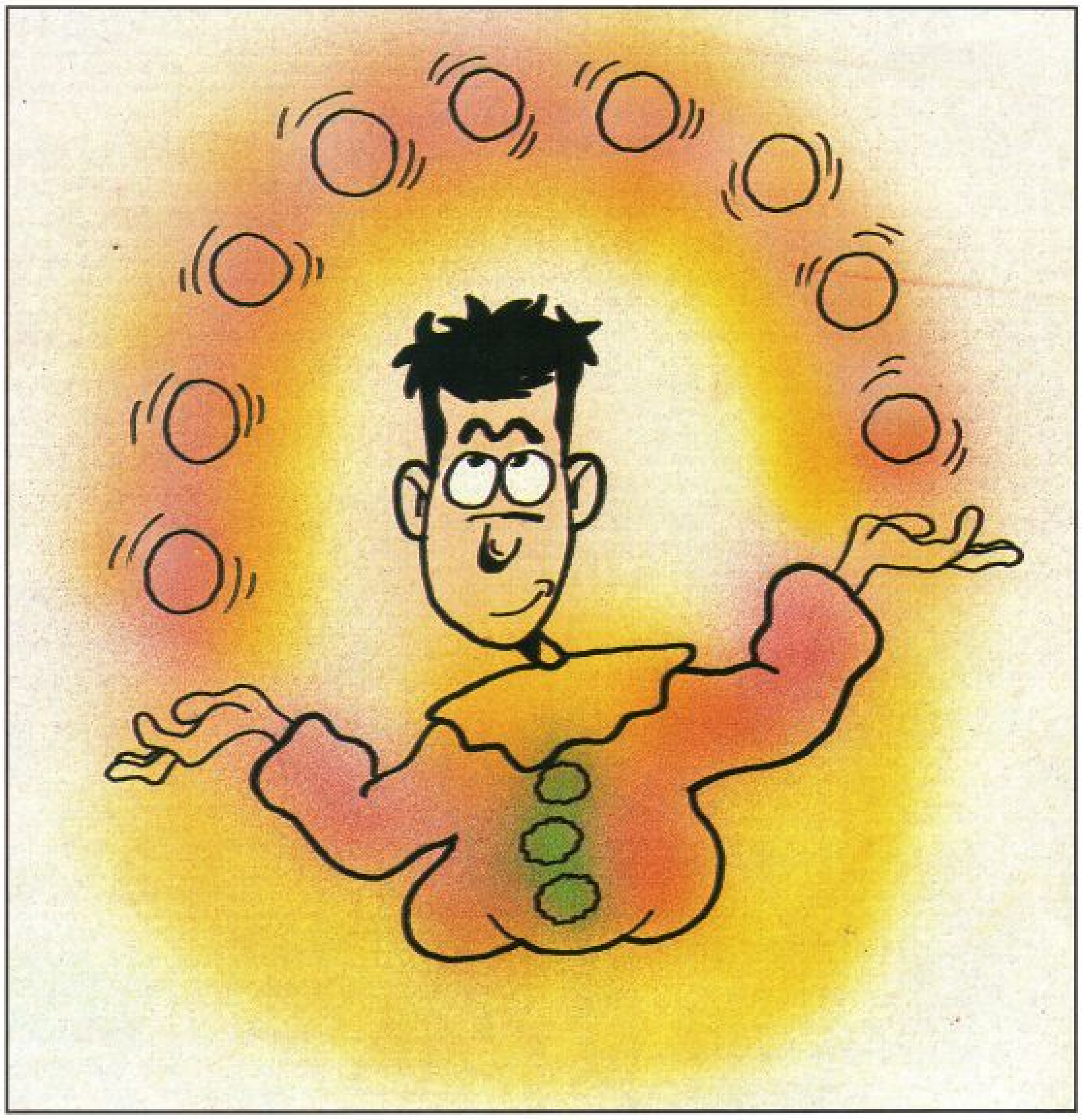
MasterCard

DEPT. ACU, 28 BELMONT AVENUE,
LOW MOOR, BRADFORD, W. YORKS
BD12 0PA. Tel: 0274 602180 (2pm-6pm).

Prices include VAT and carriage unless otherwise stated.

A VERY MOVING EXPERIENCE

Basic Animation is the game; Sean McManus is the name. Read on and pick up some important programming tips.



London by night – this is all you need to have seen to have the tools at your disposal for fast BASIC animation. But let's start with something simpler: junior school education.

Most of us have fond memories of making cartoons at school, by drawing two slightly different pictures, and then flicking rapidly between them. This is, in effect, two-frame animation - a cartoon made from two static pictures. To simulate this on the CPC we have to be able to 'flick' between two images on screen instantaneously. At this point, machine code programmers generally grin smugly, fold their arms and watch their BASIC counterparts wallow in failure.

The problem is that BASIC takes too long to draw a frame. Certainly any design worth animating would take at least several seconds to draw, shattering the illusion of motion. Perhaps we're approaching the problem the wrong way...

In mode 0 (let's use this mode – the reason will become obvious later), you can have 16 different colours, including the 'background', from a possible 26, on screen at any given time. Pens are used to draw, and the pens are filled with INKS, using the INK command. If you're not familiar with these commands, now would be a very good time to reach for the manual. Pens can be made to flash by assigning two inks to them. The computer will automatically alternate the inks – changing all the occurances of the pen wherever it is on the screen. Instantaneously. Problem solved!

So, we can make the computer do our 'flicking' for us, by drawing our two images in different pens, and assigning the inks to flash. For example, if we have two frames, one drawn in pen one and the other drawn in pen two, we might assign the inks as follows:

```
INK 1,26,0:ink 2,0,26
```

This assumes that 0 is the background colour. Pen 1 will be 26 (bright white), while pen 2 is the background colour (hidden). Then, pen 2 will become visible, as pen 1 is hidden. This 'flicking' between the images will continue until stopped, in the background of whatever else is happening.

Try DEMO I. It shows several animated jugglers. Upon running, you will be able to see the design as it appears in the default inks. Press any key to start. Parts of the design that are common to both frames are drawn in a pen which does not flash – it remains the same colour in both frames. As the scrolling message says, once the design is drawn, the computer can get on with other business, without interrupting the animation. The speed of the animation can be altered using the SPEED INK command. Can you imagine how painful it would have been to write this fairly simple demo without colour swapping?

Whilst 'Roland on the Ropes' was deemed trendy in its day because the words flashed different colours between loading blocks, we now know how to do some very interesting interblock animations, without too much effort.

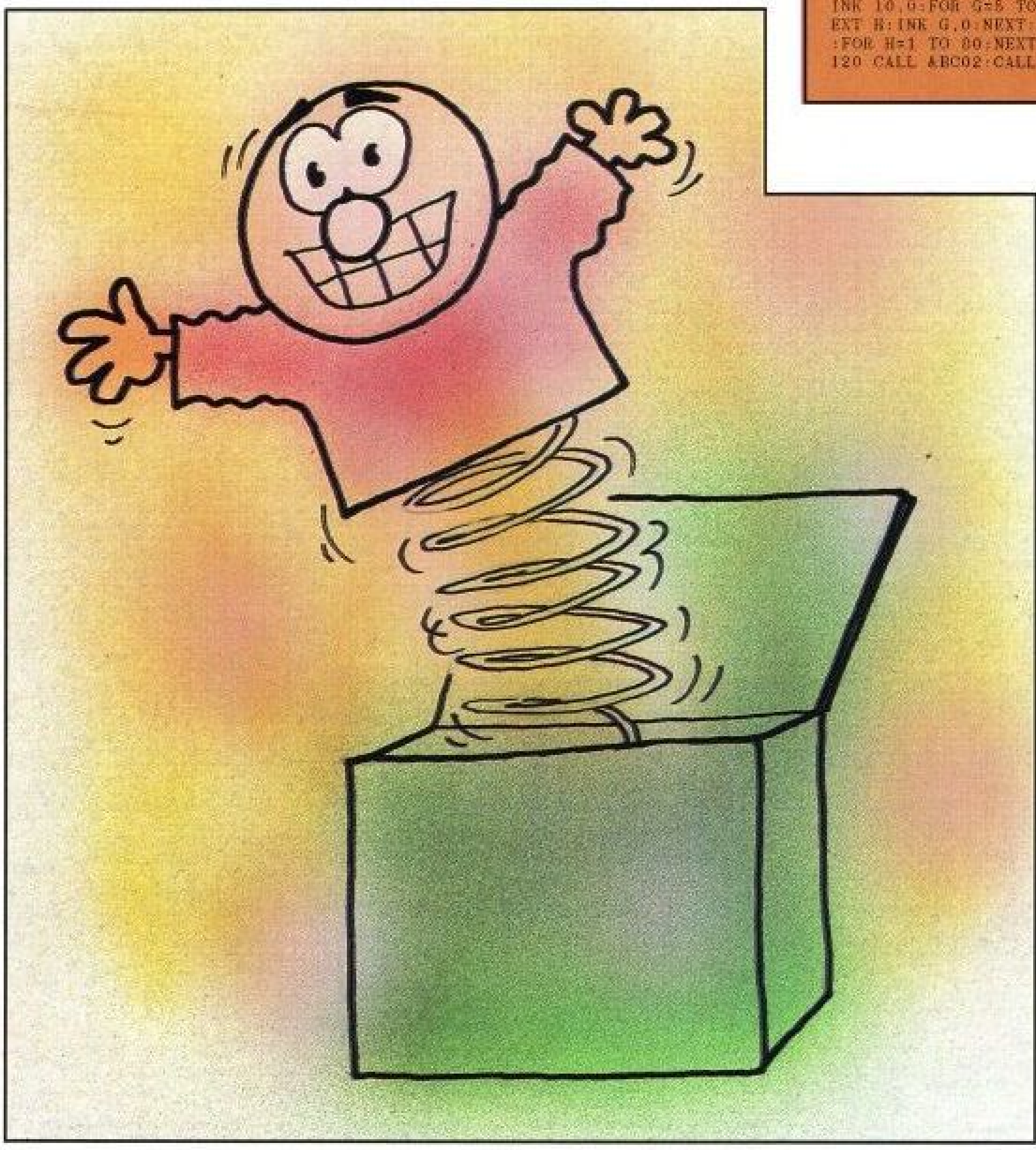
But all this only allows for two-frame animation. Let's return to London (yes, wondering about that, weren't you?): Piccadilly Circus by night and its towering facades of neon advertising. Very effective. Yet, each individual panel is quite simple. Shaped tubes are

DEMO I – The Jugglers

```
10 ' Juggler - colour switching DEMO I [F1]
20 ' (C) 1991 Sean McManus [F2].
30 ' [F3]
40 ON BREAK GOSUB 120 [9B]
50 DATA EEEEFFFFEEEEFFFF0,00EEEEFFEEFFFF000,0000EE4444FF0000 [D3]
0,000000444100000000,00000066660000000,0000AA88BB9900000,99AA [D3]
00BB880099AA0,99AA0088660099AA0,0066006BB0066000,0000666666 [D3]
6600001,00000077770000001,00000077770000001,0000007777000000 [D3]
1 [D3]
60 DATA 000033222222000001,000000332200000001,0000003333000000 [09]
0,0000000000000000E [09]
70 CALL &BC02:x(0)=100:x(1)=500:y(1)=300:y(0)=100:MODE 0:RES [F2]
TORE 50:FOR y=1 TO 16:READ a$:FOR x=1 TO 16:FOR a=0 TO 1:FOR [F2]
 b=0 TO 1:PLOT x*4+x(a),y*4+y(b),VAL("&"+MID$(a$,x,1)):PLOTR [F2]
 0,2:NEXT b,a:TAG:MOVE 190+x*16,80+y*16:PRINT CHR$(143);:TAG [F2]
OFF:NEXT x,y [F2]
80 SYMBOL 255,48,254,22,60,116,210,254,16:PEN 1:LOCATE 20,25 [72]
:PAPER 0:PRINT CHR$(255); [72]
90 PRINT CHR$(23)CHR$(1);:DEG:TAG:a$="Juggle":FOR g=1 TO LEN [0A]
(a$):FOR i=12 TO 13:PLOT -10,-10,i:MOVE 310+200*SIN(g*15+315 [0A]
)+RND*20,160+200*COS(g*15+315)+RND*20:PRINT MID$(a$,g,1);:NE [0A]
XT i,g:TAGOFF [0A]
100 CALL &BB06:INK 15,10,3:INK 14,3,10:INK 3,15:INK 2,6:INK [04]
7,24:INK 6,26,2:INK 11,2,26:INK 9,2,3:INK 10,3,2:INK 0,3:INK [04]
 4,10:INK 13,24,3:INK 12,3,24:BORDER 3 [04]
110 a$="This juggler is now animating himself in the backgro [49]
und - the only processing is this scrolling message.  ":WHIL [49]
E 1:FOR g=1 TO LEN(a$):LOCATE 2,23:PRINT MID$(a$+a$,g,17);:N [49]
EXT:WEND [49]
120 MODE 2:PEN 1:PAPER 0:CALL &BC02:LIST [FE]
```

DEMO II – Jack in the Box

```
10 ' Jack In the Box - DEMO II [F1]
20 ' (C) 1991 Sean McManus - 24th September [F2]
30 ' [F3]
40 ON BREAK GOSUB 120:MODE 0:SYMBOL 255,48,254,22,60,116,210 [66]
,254,16:PEN 13:LOCATE 20,25:PAPER 0:PRINT CHR$(255);:INK 13, [66]
23 [66]
50 x=320:y=300:BORDER 0:INK 0,0:INK 8,20:LOCATE 1,9:PEN 8:PA [CD]
PER 0:PRINT"Please":PRINT" Wait":FOR g=1 TO 5:INK g,0:NEXT:P [CD]
LOT 50,100,8:DRAWR 50,0:DRAWR 0,10:DRAWR -20,70:DRAWR -10,0: [CD]
DRAWR -20,-70:DRAWR 0,-10:FOR g=1 TO 6:PLOT 74,130+g*6:DRAWR [CD]
 4,0 [CD]
60 NEXT:PLOT 105,162:DRAWR -30,-42,14:DRAWR -30,42,15:INK 15 [22]
,20,0:INK 14,0,20:SPEED INK 15,15:FOR LOOP=5 TO 1 STEP -1:X= [22]
320:Y=440-LOOP*50:a=loop*14:PLOT 270,100,loop:DRAW 270+50*SI [22]
N(280+a),100+50*COS(280+a):PLOT 380,100,loop [22]
70 DRAW 380+50*SIN(90-a),100+50*COS(90-a):PLOT x,y:DRAWR -5, [5B]
-5:DRAWR -20,-50:DRAWR 5,-5:DRAWR 51,0:DRAWR 5,5:DRAWR -20,5 [5B]
0:DRAWR -5,5:DEG:FOR g=0 TO 2:FOR h=1 TO 360 STEP 40:PLOT x+ [5B]
5*SIN(h)+5,y+5*COS(h)-g*20:DRAW x+8*SIN(h)+5,y+8*COS(h)-g*20 [5B]
:NEXT h,g [5B]
80 PLOT x+30,y-60:FOR g=90 TO 270 STEP 5:DRAW x+35*SIN(g)+5, [D8]
y+25*COS(g)-90:NEXT:DRAW x-22,y-60:PLOT x-15,y-120:DRAWR 40, [D8]
0:FOR g=1 TO 2:PLOT x-45+g*20,y-140:DRAWR 10,20:DRAWR 10,-20 [D8]
:NEXT:DRAWR 10,20:DRAWR 10,-20:DRAWR -60,0 [D8]
90 PLOT x-30,y-140:DRAWR -10,10:DRAWR -50,20:DRAWR -20,-15:D [BD]
RAWR 70,-30:DRAWR 10,-10:DRAWR -10,-50:DRAWR 10,-10:DRAWR 70 [BD]
,0:DRAWR 10,10:DRAWR -10,50:DRAWR 10,10:DRAWR 70,30:DRAWR -2 [BD]
0,15:DRAWR -70,-40 [BD]
100 FOR G=1 TO 360 STEP 16:PLOT X+10*SIN(G)+120,Y-100+10*COS [8E]
(G):PLOT X+10*SIN(G)-110,Y-100+10*COS(G):NEXT g,loop:FOR g=1 [8E]
 TO 100 STEP 2:PLOT 0,g:DRAW 270,g,0:DRAWR 110,0,7:DRAWR 150 [8E]
,0,0:NEXT:INK 7,24:WINDOW £1,1,6,1,25:PAPER 0:CLS £1:LOCATE  [8E]
1,22:PEN 10 [8E]
110 PRINT"Press":PRINT"Any Key":WHILE 1:INK 10,6:CALL &BB06: [54]
INK 10,0:FOR G=5 TO 1 STEP -1:INK G,26:FOR H=1 TO 120-g*15:N [54]
EXT H:INK G,0:NEXT:INK 1,26:CALL &BB06:FOR g=1 TO 5:INK G,26 [54]
:FOR H=1 TO 80:NEXT H:INK G,0:NEXT:WEND [54]
120 CALL &BC02:CALL &BB06:MODE 2:PEN 1:LIST [CA]
```



lit and unlit, in sequence. This does not sound dissimilar to an approach we can adopt for animation on the CPC. Our tubes become lines and shapes, and our lighting is achieved by colour swapping. In Mode 0 we have 15 different colours (potential frames) at our disposal.

Enter Demo II. An animated Jack in the Box - a potential nightmare in BASIC – becomes quite simple by applying our 'neon logic'. Upon running, inks (= frames) one to five are set to the background colours, to hide them while they are being drawn. Pen 8 is used to display a 'Please Wait' message, and our two-frame animation comes into its own with the little metronome that ticks away in front of us while the computer busies itself with the jack drawing. Each jack takes about 20 seconds to draw - well beyond the limit of normal animation. As it now stands, FOR-NEXT loops have been used to SLOW down its bounce! Note the technique of hiding a design in progress, to preserve its impact with spontaneity. Press any key to launch Jack, and another key to recall him. Repeat until bored, and then break. At the end, all the inks will be reset, revealing all frames.

The Jacks are drawn from bottom to top, since they overlap and the top one must be the best. It is possible to plot the crossover points in a pen that is lit in both frames, and allow special programming for this. (See DEMO I's 'Juggle' text.) For an animation of this speed, it's hardly worth it.

These two programs demonstrate the power at the Basic programmer's fingers when he 'Thinks Neon' and uses colour swapping to bring screens alive.

Now, it's up to you. Work on your own designs, or pick and change on the two demos we've looked at here. If you're happy with the result, why not send it in to ACU for the crew to have a look at. The best piece of simple animation will be rewarded with a special ACU certificate, to boot.

So, get programming and let's see those demos soon.

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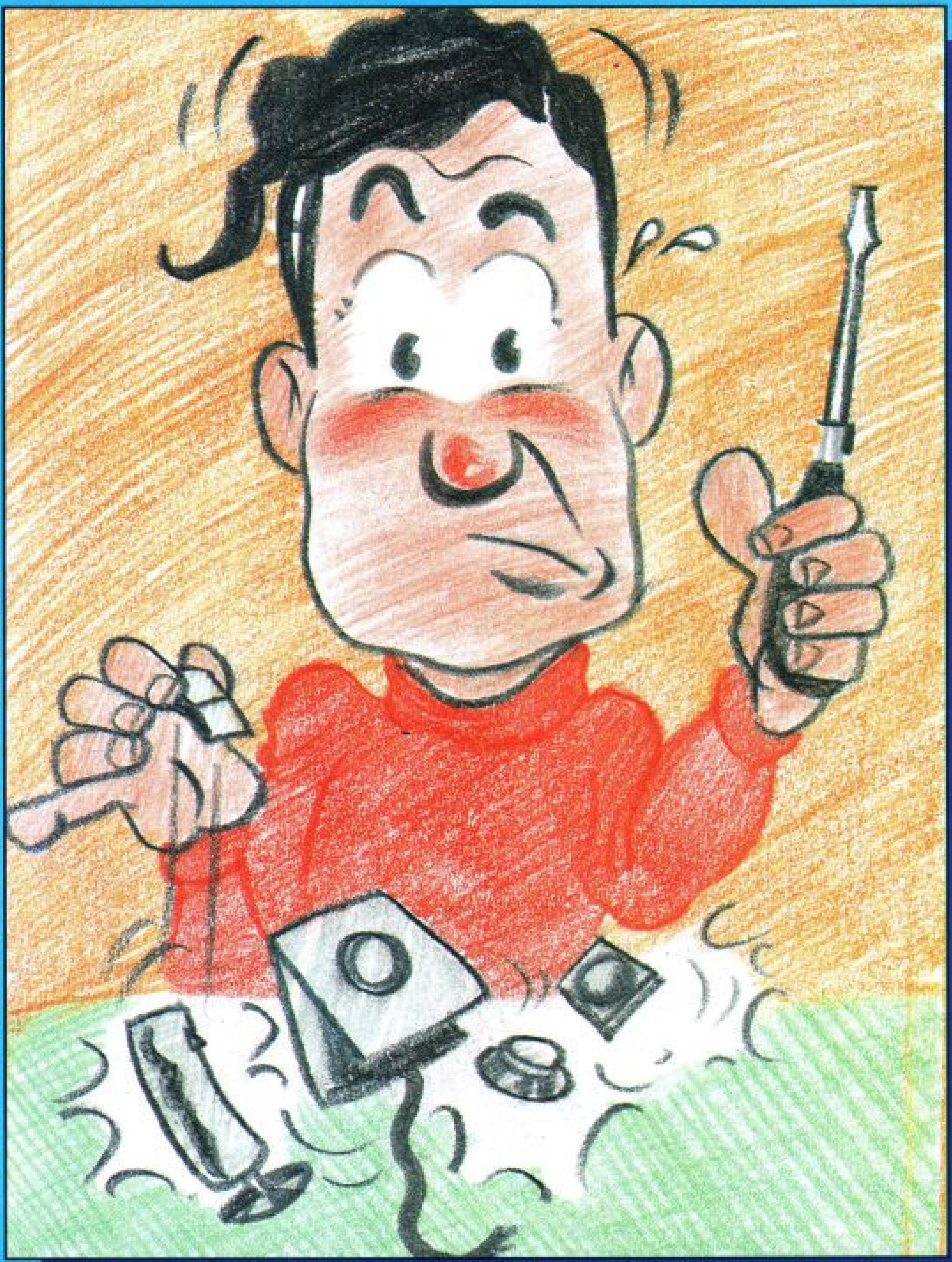
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Now then, if any of you out there are already paralysed with fear at the thought of taking a screwdriver to some joystick components, don't worry. This really is a piece of cake and, if you want to own an excellent, all-round stick, then this is your chance to get hold of one dirt cheap. So what if you have to do some of the hard work yourself? It's all good, clean fun.

All you need to put together your very own blasting rod is contained in the little bag from Sureshot. In not more than five minutes, we will take you through the step-by-step stages to successful completion, and then tell you how to get hold of one of these delightful Designer joysticks absolutely FREE!

Here we go. First off, take a look at PIC 2, which will show you the assortment of goodies you will be dealing with.

STEP 1
We're off! First of all, get a hold of the top section of the joystick case (that's the yellow bit in our case). Now, gently push the red fire button into the round hole by matching the keyway in the case, with the locating key in the button.

STEP 2
Do you see the little hole in the front edge of the case in pic 1? Right, your next step is to place the loom edge (that's the small end of the big bundle of wires) into this slot, with the flat edge facing up.

STEP 3
Once that's done, you must now separate the brown, black and white wires, moving them to the right side of the case, as you look down onto it. Put the blue, green and orange wires to the left.

STEP 4
Now you must connect the brown wire terminal onto the metal blade on the shortest side of a microswitch. Then, take the first terminal of the black wire and connect that to the blade on the longest side of the same microstitch. By the way, the microswitches are the brown things in PIC 2. Once that's done, slot the microswitch onto the pegs in the position shown in DIAGRAM A.



PIC 1



PIC 2



PIC 3

PIC 4



DIAGRAM A
Wiring diagram from inside the joystick showing positions of each microswitch.

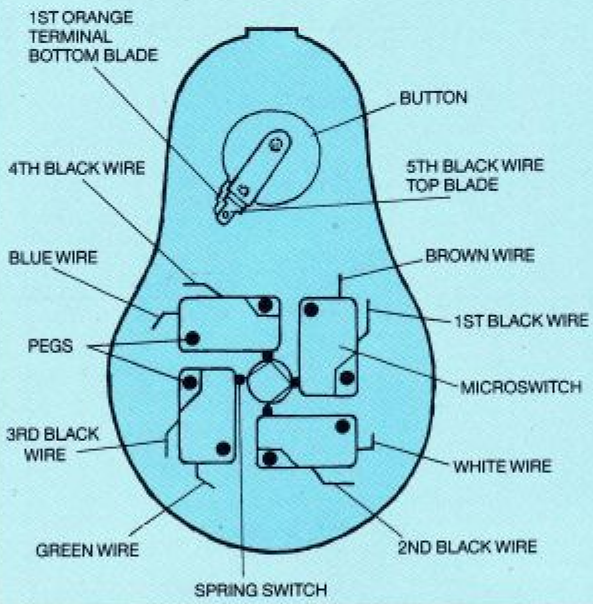
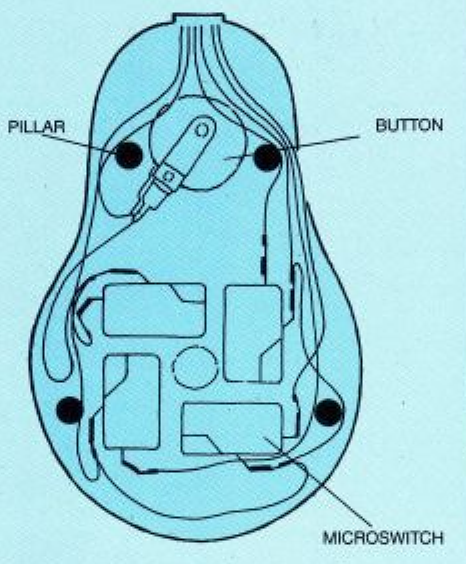


DIAGRAM B
Wiring diagram showing the position of the wires once they have been attached to the microswitches.



STEP 5
Some easy bits here. Take the white wire and the second terminal of the black wire and connect them as in STEP 4 to the second microswitch and slot it in as shown.

STEP 6
We told you this was easy, didn't we? Take the green wire and the third terminal of the black wire, repeat STEP 4 with the third microswitch and slot in. You haven't even used your screwdriver yet, have you? Be patient, that comes in a minute.

STEP 7
Right, careful handling is the key here. Take the pistol grip handle (that's the long, red thing) and slot it into the square hole of the casing, facing the button. Then, place the actuator (the blue thing in PIC 2) onto the protruding shaft inside the casing, with the largest end touching the square hole. Push the metal circlip (also shown in PIC 2) into the groove at the end of the shaft and your stick is in place.

STEP 8
Back to the easy bit. Take the blue wire and the fourth terminal of the black wire and connect them to the last microswitch, slotting it in to complete the circle.

STEP 9
Now to connect the old fire button up. Get a grip on the orange wire and connect it up to the bottom blade on the button. You should now connect the fifth black terminal onto the top blade on the button to finish off.

Right, let's have those scissors, Doc. The next trick is to grab hold of any remaining black and orange wires and cut them off as close to the button blades as possible. Once that's done, throw them away and you can start tidying up your handiwork.

Wrap any excess wiring around the pillars at the edge of the joystick, and make sure that none of them pass over the screw pillars, or microswitches, or touch the button blades. To check this all out, just glance up at DIAGRAM B and see if you've got it all sorted.

STEP 10
OK, this is the last set of instructions. You're nearly home and dry now. Place the base of the joystick casing onto the rest of the assembly, taking care to line up the screw pillars, and slot the whole thing together. Insert the four screws into the holes and, wait for it, tighten them up with the Pozi-drive. Ziggy, I said tighten them up!

Now, stick the four adhesive base *pads over the screw holes by peeling* off the backing. Press them into position and, hey presto! You're ready for action!

There, now that wasn't too difficult was it? Your final product should look a little like PIC 3. If it doesn't, then something has gone seriously wrong, and you may have to start again, checking the steps through carefully to see where any errors occurred.

If you have any problems, like the fire button not working, or your sprite moves left when you push the joystick to the right, just check that no wires are caught between the button blades and then see that your colour coded wiring is up to scratch.

PIC 1 shows you how the internals should look, so check it and get blasting.

DESIGN FOR FREE
Now we come to the much more important part of the article – how to get hold of your very own FREE Designer Joystick. Well, courtesy of those extremely generous people at PowerPlay/Sonmax, we at ACU have got no less than 25 of these little beauties to give away absolutely GRATIS!

There are going to be a fair few takers on this little offer, so you'd better be quick off the mark if you want to get your hands on one.

How do you do it? Simple, all you need to do is send in a postcard to the address below, not rogetting to put your own address on it somewhere as well.

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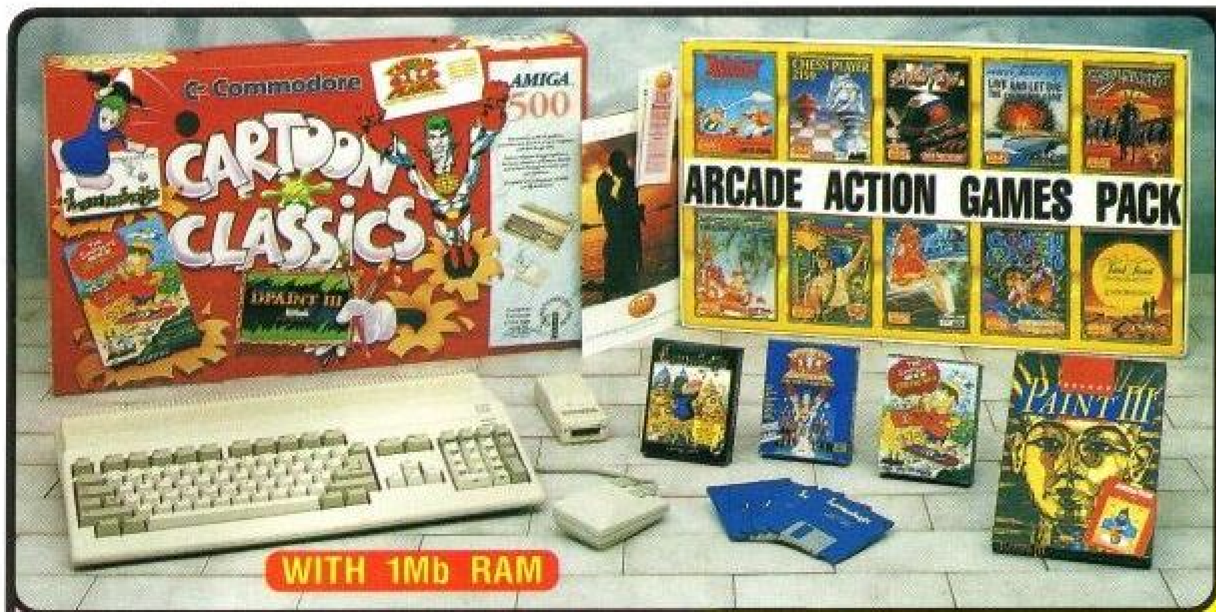
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OK, get ready and send your postcards to:

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Now don't go forgetting those magic words, OK? Happy blasting and we'll see you in the New Year.



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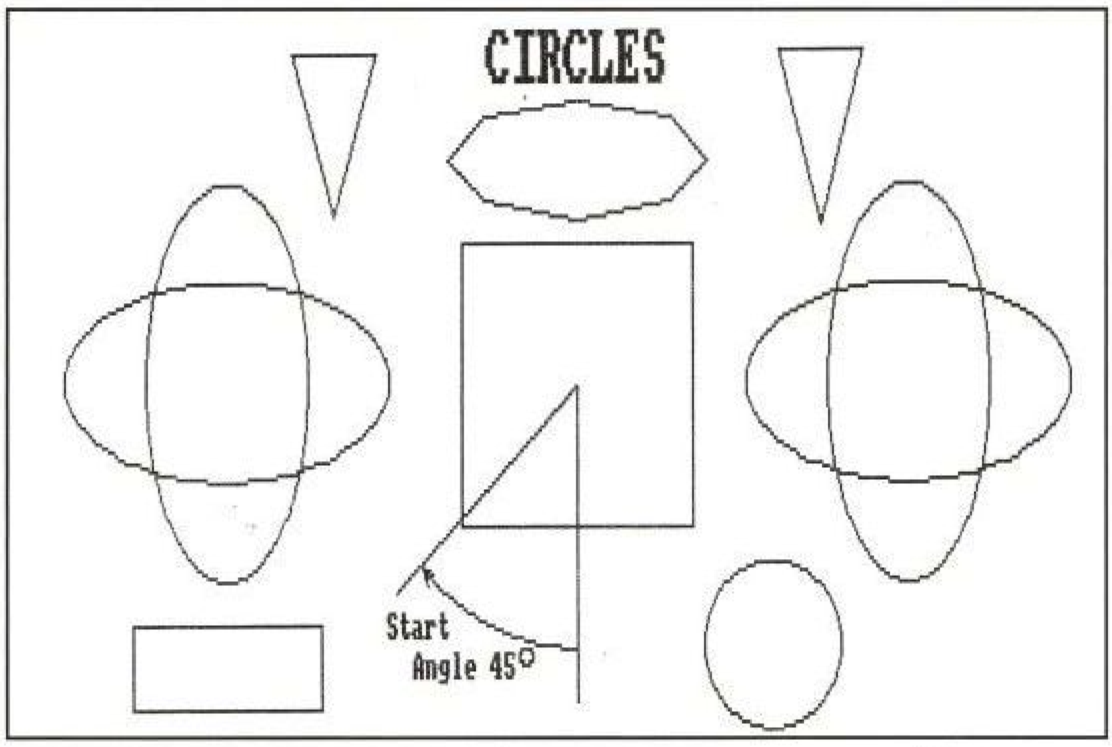
ARCS AND ERASERS

The full listing to date and some extra goodies from the graphics man, Glynne Davies.

Two more modules to add to the program, the first deals with rubbing out unwanted items and the second module is for creating shapes. You need to load "EASY3" created last month. If you have not followed the series so far or missed last month, here is the full listing to date:

The Listing so far

```
10 REM EASYDRAW2
15 SYMBOL AFTER 32
20 REM Variables x y (co-ordinates) jump (cursor move distance)
21 REM variables ip (ink pen) ib (ink border/paper) d (display) mde$ (mode selected)
23 REM variable beam (leave line if beam is on)
24 REM Variable ele (Elastic band switch) xf,yf (origin for Elastic band)
25 REM Variables ans$ (Input string) xx (Input position) 1 (Input length) str (string if 1 numeric if 0)
26 REM Variables angle (Arc angle) r (radius)
40 x=320:y=200:jump=10:ip= 13:ib=0: mde$=" MOVE"
45 INK 1,ip:INK 0,ib:BORDER ib
50 MODE 2:REM 640x200 graphics
52 WINDOW 1,79,1,1:ORIGIN 0,0,0,640,384,0:GOSUB 12000:REM Set up a text window (window) to be the top line. Set up a graphics window (origin) for the remaining screen
60 GOSUB 5070:REM draw cursor
70 WHILE trip=0
80 REM Remove keypress for speed
90 GOSUB 5000:REM Cursor move
100 IF INKEY(53)=128 THEN ip=(ip+1) MOD 27:INK 1,ip:IF ip=ib THEN ip=ip+1:INK 1,ip:REM If CTRL+F are pressed change the Foreground colour
110 IF INKEY(54)=128 THEN ib=(ib+1) MOD 27:INK 0,ib:BORDER ib:IF ib=ip THEN ib=ib+1:INK 0,ib:BORDER ib:REM If CTRL+B are pressed change the Background colour and the Border colour
120 IF INKEY(61)=128 THEN d=(d+1) MOD 2:LOCATE 12,1:PRINT SPACE$(16);:REM If CTRL+D are pressed switch on x,y Display
130 IF d=1 THEN LOCATE 12,1:PRINT SPACE$(16);:LOCATE 12,1:PRINT "X=";x;"Y=";y;:REM Display X and Y
140 IF INKEY(50)=128 THEN GOSUB 5070:x=320:y=200:GOSUB 5070:IF d=1 THEN LOCATE 12,1:PRINT "X=";x;" Y=";y;:REM Reset X to 320 and Y to 200
150 IF INKEY(54)=0 THEN GOSUB 11000:beam=1:a=x:b=y:GOSUB 12000:REM Reset all the function variables to zero (line 11000) and Reprint status line
160 IF beam=1 THEN GOSUB 4500:a=x:b=y
170 IF INKEY(38)=0 THEN GOSUB 11000:GOSUB 12000
180 IF INKEY(58)=0 THEN GOSUB 11000:set=0:mde$="ELASTIC":ele=1:GOSUB 12000:REM Press E to switch on Elastic band F to Fix a line
190 IF ele=1 THEN GOSUB 6000
200 IF INKEY(53)=0 AND ele=1 AND tl=0 THEN a=xf:b=yf:set=0:GOSUB 4500:REM Press F to Fix the line from Elastic band
210 IF INKEY(59)=160 THEN CLG:GOSUB 5070:REM Press CTRL + SHIFT + W to clear screen and replace cursor
220 IF INKEY(45)=0 THEN str=0:xx=12:ask$="PLEASE ENTER THE JUMP LENGTH":1=3:GOSUB 3000:jump=VAL(ans$):GOSUB 12000:REM Press J to change jump size. This is numeric and the str variable is set to 0. (str xx ask$ and 1 are all needed for the Input routine
230 IF INKEY(51)=0 AND text=0 THEN mde$="TEXT":GOSUB 12000:xx=12:str=1:ask$="TEXT=":1=40: GOSUB 3000:IG LEN(ans$)>0 THEN GOSUB 11000:text=1:text1=8:n$=ans$:hig=16: GOSUB 5100
240 IF INKEY(53)=0 AND text=1 THEN GOSUB 2000:REM Press F to Fix the Text in position
250 IF text=1 THEN GOSUB 15000
260 IF text=1 AND INKEY(51)=0 THEN tms=(tms+1) MOD 2:tex1=8:hig=16:IF tms=1 THEN texl=16:hig=32
270 IF INKEY(69)=0 THEN GOSUB 11000:mde$="ARC":GOSUB 12000:GOSUB 10000:GOSUB 11000:GOSUB 12000
500 WEND
2000 REM Position text
2010 TAG:REM Set the text at the graphics position
2020 IF hig=32 THEN GOSUB 20000 ELSE PRINT n$;:REM Choose Double or single
2030 TAGOFF:REM Switch back to normal text
2040 RETURN
3000REM Input routine
3005 FOR n=1 TO 20:CALL &BB1B:NEXT:REM Flush the keyboard buffer
3010 ans$=" ":GOSUB 12000:REM Reset ans$ to null and clear status line
3020 LOCATE xx,1:PRINT ask$+" "+CHR$(246)+SPACE$(1)+CHR$(247);: REM Print the question and answer space
3025 IF str=0 THEN 1im1=47:1im2=58:ELSE 1im1=31:1im2=127
3030 k$=" ":xx=xx+LEN(ask$)+2:REM reset xx to answer position
3040 WHILE ASC(k$)<>13:REM Loop until Enter is pressed
3050 k$=" ":WHILE k$=" ":k$INKEY$:WEND:REM Loop to wait for keypress
3060 IF ASC(k$)>1im1 AND ASC(k$)<1im2 AND LEN(ans$)<1 THEN ans$+ans$+k$:REM Accept any keyboard character into the string if the string is below 1. If str=0 then numbers only
3070 IF ASC(k$)=127 AND LEN(ans$)>0 THEN ans$=LEFT$(ans$,LEN(ans$)-1):REM If DEL is pressed remove a character if one exists
3080 LOCATE xx,1:PRINT SPACE$(1);:LOCATE xx,1:PRINT ans$;:REM Remove old string and replace with the new string
3090 WEND
3100 GOSUB 12000:REM remove information
3110 RETURN
4500 REM draw line (BEAM)
4510 GOSUB 5070:REM Remove cursor
4520 MOVE a,b
4530 DRAW x,y,1
4540 GOSUB 5070:REM Replace cursor
4550 RETURN
4990 REM *************************
5000 REM Cursor move
```




```
5010 IF INKEY(1)=0 THEN GOSUB 5070:x=x+jump:GOSUB 5070
5020 IF INKEY(8)=0 THEN GOSUB 5070:x=x-jump:GOSUB 5070
5030 IF INKEY(2)=0 THEN GOSUB 5070:y=y-jump:GOSUB 5070
5040 IF INKEY(0)=0 THEN GOSUB 5070:y=y+jump:GOSUB 5070
5060 RETURN
5065 REM **************************
5070 REM Draw cursor
5080 IF text=1 THEN RETURN
5100 LOCATE 1,1:PRINT CHR$(23)+CHR$(1):REM set xor mode.
5110 MOVE x-10,y:DRAW x+10,y,1
5120 MOVE x,y-10:DRAW x,y+10,1
5130 LOCATE 1,1:PRINT CHR$(23)+CHR$(0):REM Reset graphics to normal
5140 RETURN
6000 REM Elastic Band
6010 LOCATE 1,1:PRINT CHR$(23)+CHR$(1):REM XOR mode
6020 IF set=0 THEN xf=x:yf=y:set=1:MOVE xf,yf:DRAW x,y,1:REM Fix xf and yf when set= 0
6030 MOVE xf,yf:DRAW x,y,1
6040 FOR w=1 TO 10:NEXT:REM a short pause
6050 DRAW xf,yf,1
6060 LOCATE 1,1:PRINT CHR$(23)+CHR$(0):REM Normal Mode
6070 RETURN
10000 REM ARC
10010 angle=0:IF r=0 THEN r=20:REM Set a radius if none exists
10030 WHILE arc=0
10040 IF INKEY(60)=0 AND start=0 THEN s=angle:xy+1:MOVE x,y:DRAW x+r*SIN(angle),y+r*COS(angle),1: start= 1:REM Press S for the start position of the arc
10050 IF INKEY(53)=0 AND start=1 THEN arc=1:f=angle:REM Press F at the Finish position of the arc
10060 IF INKEY(39)=0 THEN angle=angle-0.05:REM Move the arm anti clockwise KEY <
10070 IF INKEY(31)=0 THEN angle=angle+0.05:REM Move the arm clockwise KEY >
10080 IF INKEY(28)=0 THEN r=r+4:REM Increase the radius KEY +
10090 IF INKEY(25)=0 AND r>4 THEN r=r-4:REM Decrease the radius KEY -
10100 IF INKEY(37)=0 THEN xx=12:str=0:1=3:ask$="Enter the Radius =":GOSUB 3000:r=VAL(ans$):REM Press K to Key in the Radius
10110 IF start=0 THEN GOSUB 5000:PRINT CHR$(23)+CHR$(1);:REM cursor keys
10120 MOVE x,y
10130 DRAW x+r*SIN(angle),y+r*COS(angle) ,1
10140 MOVE x,y
10150 DRAW x+r*SIN(angle),y+r*COS(angle),1
10160 WEND
10170 IF f<s THEN inc=-0.02 ELSE inc=0.02
10180 MOVE x,y:DRAW x+r*SIN(s),y+r*COS(s),1
10190 PRINT CHR$(23)+CHR$(0);
10200 MOVE x+r*SIN(s),y+r*COS(s)
10210 FOR n=s TO f STEP inc:REM Draw the ARC
10220 DRAW x+r*SIN(n),y+r*COS(n),1
10230 NEXT
10240 arc=0:start=0:REM reset variables
10260 RETURN
11000 REM Reset all function variables to zero
11005 IF text=1 THEN text=0:GOSUB 5070:REM Switch off text and replace the cursor
11010 beam=0:ele=0:f1=0:rub=0:xy=0:t1=0:tb=0:t=0:mde$="MOVE"
11020 RETURN
12000 CLS
12002 IF beam=1 THEN mde$="BEAM"
12004 IF ele=1 THEN mde$="ELASTIC"
12006 IF jump=0 THEN jump=1:REM Ensure jump exists
12010 LOCATE 1,1:PRINT "Jump=";jump;:REM Distance the cursor moves
12020 LOCATE 70,1:PRINT mde$;:REM Working mode selected
12030 IF d=1 THEN LOCATE 12,1:PRINT SPACE$(16);:LOCATE 12,1:PRINT "X=";x;"Y=";y;:REM Display X and Y
12040 RETURN
15000 REM text box
15005 LOCATE 1,1:PRINT CHR$(23)+CHR$(1);
15010 MOVE x,y
15020 DRAW x+LEN(n$)*tex1,y,1:DRAW x+LEN(n$)*tex1,y-hig,1:DRAW x,y-hig,1:DRAW x,y,1
15030 DRAW x+LEN(n$)*tex1,y,1:DRAW x+LEN(n$)*tex1,y-hig,1:DRAW x,y-hig,1:DRAW x,y,1
15035 LOCATE 1,1:PRINT CHR$(23)+CHR$(0);
15040 RETURN
19990 REM Double height Double width routine
20000 FOR n= 1 TO LEN(n$)
20010 pk=ASC(MID$(n$,n,1))
20020 FOR set=1 TO 8
20030 p=PEEK(HIMEM+(8*(pk-32))+set):REM set p to the byte
20040 GOSUB 20150:REM Change to two nibbles (a nibble is half a byte (4 bits))
20050 NEXT
20060 REM convert the characters 255,254,253,252 into the four quarters of a block
20070 SYMBOL 255,hb(1),hb(1),hb(2),hb(2),hb(3),hb(3),hb(4),hb(4)
20080 SYMBOL 254,1b(1),1b(1),1b(2),1b(2),1b(3),1b(3),1b(4),1b(4)
20090 SYMBOL 253,hb(5),hb(5),hb(6),hb(6),hb(7),hb(7),hb(8), hb(8)
20100 SYMBOL 252,1b(5),1b(5),1b(6),1b(6),1b(7),1b(7),1b(8),1b(8)
20110 MOVE x+mov,y:PRINT CHR$(255);CHR$(254);
20115 MOVE x+mov,y-16:PRINT CHR$(253);CHR$(252);
```

```
20120 mov=mov+16
20130 NEXT
20135 mov=0
20140 RETURN
20150 REM change to two nibbles
20160 1b=p AND 15:a=1b:GOSUB
20190:1b(set)=nn:nn=0
20170 hb=p AND 240:a=hb/
16:GOSUB 20190:hb(set)=nn:nn=0
20180 RETURN
20190 REM change nibbles TO bytes
20200 IF a=0 THEN RETURN
20210 IF a-8>=0 THEN
nn=nn+192:a=a-8
20220 IF a-4>=0 THEN nn=nn +
48:a=a-4
20230 IF a-2>=0 THEN nn=nn+12:
a=a-2
20240 IF a=1 THEN nn=nn+3
20260 RETURN
```

Save as "EASY3"

RUBBING OUT

Everyone makes mistakes so I have included a facility to erase a block. I have used small erasers in other packages and found them difficult to control when accuracy is required, so I have made this routine only erase after you have selected the area with a box.

Considerations

1 The area for deletion must be clear.
2 The key F can be used to Finally Remove the block chosen
3 The jump size must be selectable during this option
4 Any other function chosen will switch off the rubber.

New Variables

rub rub=1 means rubber is on.
origx Origin of x co-ordinate.
origy Origin of y co-ordinate.
xs x start for graphics window.
ys y start for graphics window.
xe x end for graphics window.
ye y end for graphics window.

The Listing (Ensure "EASY3" is in memory before typing in the listing.)

```
28 REM variables rub (rubout
variable) origx,origy (original x and
y)
280 IF INKEY(50)=0 THEN GOSUB
11000:rub=1:mde$="RUBBER":GOSUB
12000
290 IF rub=1 THEN GOSUB 16000
11010
start=0:beam=0:ele=0:fl=0:rub=0:xy=
0:t1= 0:tb= 0:t= 0:mde $="MOVE"
16000 REM Remove a chosen block
from the screen
16010 LOCATE 1,1:PRINT
CHR$(23)+CHR$(1);
16015 IF start=0 THEN
start=1:origx=x:origy=y
16020 MOVE origx,origy
16030 DRAW x,origy,1:DRAW
x,y,1:DRAW origx,y,1:DRAW
origx,origy,1
16040 DRAW x,origy,1:DRAW
x,y,1:DRAW origx,y,1:DRAW
origx,origy,1
16050 IF INKEY(53)=0 THEN
GOSUB 16100
16060 RETURN
16100 IF x<origx THEN
xs=x:xe=origx:ELSE
xs=origx:xe=x:REM find the XStart
and Xend for the window
16110 IF y<origy THEN
ys=y:ye=origy:ELSE
ys=origy:ye=y:REM find the YStart
and YEnd for the window
16115 GOSUB 5070:REM remove
cursor
16120 ORIGIN xs+4,ys,xs+4,xe-
4,ys,ye:CLG:REM Redefine the
graphics screen and clear the new
window
16130 ORIGIN 0,0,0,640,384,0:REM
Reset graphics screen
16140 GOSUB 5070:REM replace
cursor
16150 RETURN
```

A Look at the Listing

Line 280 Press R for Rubber
Line 11010 Reset new variables
Line 16020-16040 Draw box around selected area.
Line 16100-16110 Calculate xs xe ys and ye
Line 16120 Change graphics screen to the box selected and CLear the Graphics screen.
Line 16130 Reset the graphics screen to the full screen apart from the top line.
Save the program as "Rubber" and RUN to test.

How to Use the Rubber

Draw something to erase
Select M and Move to a corner of the area you wish to rub out.
Press R
Use the arrow keys to select the block to be erased
Press J to change the jump size
Press F to erase what is within the block
Select Beam,Elastic etc to switch off the rubber.

CIRCLE AND SHAPES

Although it is possible to draw circles with the Arc routine this routine allows you to draw full circles, ellipses and shapes of any amount of sides. The horizontal radius and Vertical radius are asked for so the circles or shapes can be elliptical. The use of this routine is the same as the Arc routine when asking for the radius, after which the amount of sides are asked for with the start position (the start position is the bottom centre and the angle in degrees is clockwise see circle/shape drawing)

Considerations

1 All shapes (triangle square polygon circle) to be produced.
2 The start position of the shape can be stated.
3 The size of the previous shape can be remembered to allow several shapes of the same size.

New Variables

side Amount of sides in the shape.
rx Radius horizontal.
ry Radius vertical.
sa Start Angle (changed from degree to radians.

The Listing ("Rubber" needs to be in the memory when typing in the listing)

```
29 REM Variables side (amount of
sides in shape) sa (Start angle of
shape)
300 IF INKEY(62)=0 THEN GOSUB
11000:mde$="CIRCLE":GOSUB
12000:GOSUB 7000:GOSUB
11000:GOSUB 12000:REM Press C
for Circle/Shape routine
7000 REM Circle and Shape routine
7010 IF r=0 THEN r=40
7020 REM Input the horizontal radius
and vertical radius to allow for
ellipses, for circular objects set
radius and press F twice
7030 start=-1:anglePI/2:LOCATE
12,1:PRINT "Horizontal
Radius":GOSUB
10030:rx=r:REM Use Arc routine
7040 FOR n=1 TO 20:CALL
&BB1B:NEXT:REM Flush the buffer
7050 LOCATE 12,1:PRINT "Vertical
Radius ":angle=0:GOSUB
10030:ry=r:start=0:REM Use arc
routine
7060 ask$="Enter then amount of
sides or Enter for
circle":xx=12:1=3:str=0:GOSUB
3000:side=VAL(ans$)
7070 IF side=0 THEN side=100:REM
If Enter is pressed set up a 100 part
circle.
7080 IF side<16 THEN ask$="Enter
the start angle 0-
360":xx=12:1=3:str=0:GOSUB
3000:sa=VAL(ans$):sa=2*PI*
(sa/360)
7090 GOSUB 5070:REM remove
cursor
7100 MOVE x+SIN
(-PI+sa)*rx,y+COS(-PI+sa)*ry:REM
move to the bottom of shape
7110 FOR n=-PI+sa TO PI+0.2+sa
STEP (2*PI)/side:REM Calculate the
positions for a circle of (side) sides
7120 DRAW
x+SIN(n)*rx,y+COS(n)*ry,1:REM
Draw a straight line between
positions
7130 NEXT
7140 GOSUB 5070:REM replace
cursor
```

```
7150 RETURN
7160 IF INKEY(53)=0 AND start=-1
THEN arc=1
7170 IF start<1 THEN GOSUB
5000:PRINT
CHR$(23)+CHR$(1);:REM cursor
keys
7180 IF start=-1 THEN
arc=0:RETURN:REM Use the Arc
routine but return at this point.
10055 IF INKEY(53)=0 AND start =
-1 THEN arc=1:REM Selection of
radius from the circle routine
10110 IF start<1 THEN GOSUB
5000:PRINT
CHR$(23);CHR$(1);:REM cursor
keys
10165 IF mde$="CIRCLE" THEN
arc=0:RETURN:REM Return to the
circle routine
```

A Look at the Listing

Line 300 Press C for Circle routine.

Line 7010 Set radius to 40 if radius does not exist.

Line 7030-7060 Ask for radius x and y and the amount of sides.

Line 7080 Ask for start position if the sides are below 16. When the amount of sides are 16 and above the shape is virtually a circle.

Line 7100 Move to the start position around the circle.

Line 10110 Use the cursor movement routine to allow positioning.

Save the whole listing as "EASY4" before running to test the new function.

EASTDRAW2 Commands So Far and when they were introduced

MONTH 1 (Program name "EASY1")

Move cursor	Use the arrow keys
CTRL+F	Colour of Foreground
CTRL+B	Colour of Background
CTRL+R	Return the cursor to the centre
CTRL+D	Display the x and y position of the cursor. (On and Off)
B	Switch on the beam
M	Switch on Move

MONTH 2 (Program name "EASY2")

E Switch on Elastic Banding
F Fix line in position
CTRL+SHIFT+W Wipe the Screen Clear.
J Input Jump size (step of cursor)

MONTH 3 (Program name "EASY3)

T Type in Text
T When text box is shown toggle between single and double size text.
F Fix text in Position

ARC

A	Select Arc
+	Increase the radius
-	Decrease the radius
<	Rotate anticlockwise
>	Rotate clockwise
K	Keyed inoput of radius
S	Mark the start of the arc
F	Mark the finish of the arc after start has been selected
Arrow keys	Move the centre of the arc

MONTH 4 (Program name "EASY4")

r	Select Rubber
Arrow keys	Change size of eraser block
F	Erase within the block

Circle and Shape
As Arc for horizontal radius.
Press F when complete.
For Vertical radius as arc if the same radius as the horizontal is required just press F.
Answer the amount of sides
Answer the start position if below 16 sides

Functions
All functions selected cancel previous selections.

Next Month there will be a module to Save, Load and Catalogue the disc and a module to paint an enclosed area with a pattern. At last your masterpiece can be saved to work on another day.

500,000 COMPUTER GAMES

PACLONE

BY SEAN MCMANUS

If you don't know what this little gem of a game is about by now, you must have had your head in a bush for the last few years. That's right, it's a clone of that old favourite *Pacman*. Run it, follow the on-screen instructions and you've got a real treat for the ears and eyes. Get tapping and start munching.

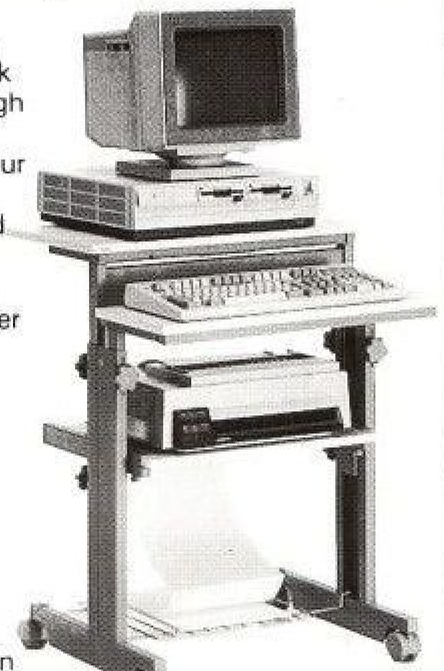
```
1 ' Paclone - (C) 1990/1991 Sean McManus [71]
2 ' Original written July 1990 - Remix 29th September 1991 f [72]
or ACU [72]
3 ' Listening 2 Anam (!) [73]
4 ' [74]
5 MODE 1:PEN 1:PAPER 0:INK 0,0:INK 1,26:BORDER 0:LOCATE 17,8 [3A]
:PRINT"PACLONE":LOCATE 8,10:PRINT"By Sean McManus - Sept 199 [3A]
1":LOCATE 8,14:PRINT"Featuring TRANSOUND STEREO":SYMBOL 255, [3A]
48,254,22,60,116,210,254,16 [3A]
6 MEMORY 39999:FOR g=0 TO 44:READ a$:a=VAL("&"+a$):POKE 4000 [58]
0+g,a:chk=chk+a:NEXT:IF chk<>4077 THEN PRINT"Error in very f [58]
irst data line !":STOP [58]
7 DATA DD,6E,00,DD,66,02,CD,1A,BC,DD,5E,04,DD,56,05,01,10,04 [85]
,13,13,C5,E5,1A,AE,77,23,13,10,F9,E1,01,00,08,09,30,04,01,50 [85]
,C0,09,C1,0D,20,E8,C9 [85]
8 mem=40342:FOR g=1 TO 7:chk=0:FOR h=1 TO 77:READ a$:a=VAL(" [94]
&"+a$):POKE mem,a:mem=mem+1:chk=chk+a:NEXT:READ chk$:IF chk< [94]
>VAL("&"+chk$) THEN PRINT"Checksum"g"is wrong.":STOP [94]
9 NEXT [47]
10 DATA 10,04,00,00,00,00,00,00,00,00,00,00,00,00,00,FC,FC,0 [C6]
0,40,FC,FC,A8,54,E8,FC,A8,00,00,00,00,04,0C,0C,08,44,CC,CC,8 [C6]
8,44,CC,CC,88,41,C3,C3,82,00,00,00,00,54,D4,FC,A8,54,FC,D4,A [C6]
8,00,00,00,00,00,00,00,00,10,04,00,00,11,22,00,00,22,00,00,1 [C6]
502 [C6]
11 DATA C0,62,00,40,30,32,80,40,C0,C0,80,05,C0,C0,0A,41,0F,0 [9E]
F,82,54,C3,C3,A8,44,FC,FC,88,40,CC,CC,80,00,C0,C0,00,00,C0,C [9E]
0,00,00,C0,C0,00,00,C0,C0,00,00,C0,C0,00,00,40,80,00,10,04,0 [9E]
0,54,54,00,54,54,54,A8,00,A8,FC,A8,54,FC,A8,A8,54,FC,FC,A8,2 [9E]
112 [9E]
12 DATA 54,FC,FC,A8,00,00,00,00,40,C0,C0,80,40,C0,C0,80,05,0 [60]
F,0F,0A,41,F3,F3,A2,54,FC,FC,A8,44,CC,CC,88,40,C0,C0,80,40,C [60]
0,C0,80,00,00,00,00,10,04,00,00,00,00,00,00,00,00,00,00,00,0 [60]
0,00,00,00,00,00,00,00,00,00,10,00,00,00,98,20,00,54,CC,1 [60]
63E [60]
13 DATA 20,00,54,DC,00,00,00,A8,00,00,00,00,00,00,00,00,00,0 [43]
0,00,00,00,00,00,00,00,00,00,00,00,00,00,00,10,04,00,00,0 [43]
0,00,00,00,00,00,00,00,00,00,54,A8,00,00,FC,54,00,00,FC,7 [43]
C,A8,40,FC,FC,AA,40,FC,FD,00,40,FC,00,00,40,FC,FD,00,40,D4,1 [43]
01C [43]
14 DATA FC,AA,00,D4,FC,A8,00,C0,E8,00,00,40,80,00,00,00,00,0 [5C]
0,00,00,00,00,10,04,00,00,00,00,00,00,00,00,00,00,00,00,5 [5C]
4,A8,00,00,A8,FC,00,54,BC,FC,00,55,FC,FC,A8,00,FE,FC,A8,00,0 [5C]
0,FC,A8,00,FE,D4,A8,55,E8,E8,A8,40,D4,D4,00,00,C0,E8,00,00,1 [5C]
B58 [5C]
15 DATA 40,80,00,00,00,00,00,00,00,00,00,10,04,00,41,41,00,0 [71]
0,00,82,00,00,82,82,82,41,41,C3,41,41,2A,82,6B,00,C3,4B,82,0 [71]
0,00,82,00,41,41,C3,41,41,C3,0F,C3,00,0F,C3,0A,41,4B,87,C3,0 [71]
5,87,87,87,00,4B,4B,0A,41,C3,41,C3,41,00,00,41,00,00,00,00,1 [71]
320 [71]
16 DATA 10,04,30,20,30,20,30,20,30,20,00,00,00,00,20,30,30,1 [B7]
0;20,30,30,10,00,00,00,00,10,30,10,30,10,30,10,30,00,00,00,0 [B7]
0,20,30,20,30,20,30,20,30,00,00,00,00,30,20,30,20,30,20,30,2 [B7]
0,00,00,00,00,00,00,00,00,10,04,00,00,00,00,00,00,00,00,00,6 [B7]
08 [B7]
```

```
17 ON ERROR GOTO 18:|SPED,3:spon=1 [9F]
18 SCORE=0:INK 0,3:ON BREAK GOSUB 57:MODE 0:SPEED KEY 2,2:WH [8D]
ILE INKEY$<>"":WEND [8D]
19 PAPER 0:PEN 1:LOCATE 8,2:PRINT"PACLONE":LOCATE 2,4:PRINT" [20]
Eat all the chicken nuggets, All the    stodgy burgers, all  [20]
the slurry pots and all the french straw":CALL 40000,40606,1 [20]
0,10:PEN 7:LOCATE 5,14:PRINT"Keys: A Z N M":PEN 4 [20]
20 LOCATE 5,25:PRINT"Press any Key":INK 0,3:LOCATE 1,17:PEN  [18]
1:CALL 40000,40738,10,18:PRINT"Avoid the Tummybugs:":LOCATE  [18]
6,23:PRINT"HISCORE:"HI:LOCATE 20,25:PRINT CHR$(255); [18]
21 RESTORE 45:INK 15,24,0:INK 7,24:INK 9,19:INK 10,18:INK 2, [CE]
6:INK 3,15:INK 1,26:BORDER 3:INK 4,10:SPEED INK 10,10:INK 14 [CE]
,19:WHILE INKEY$<>"":WEND:GOSUB 71 [CE]
22 INK 0,0:MODE 0:RESTORE 22:FOR G=1 TO 3:READ X(G),Y(G),D(G [1F]
):CALL 40000,40738,X(G),Y(G)*2:NEXT:FOR G=1 TO 4:READ DP(G), [1F]
DPY(G):NEXT:DATA 4,3,4,12,6,1,3,8,1,0,1,0,-1,1,0,-1,0 [1F]
23 SPEED INK 10,10 [0C]
24 DIM T(20):FOR G=1 TO 7:T(G)=4:NEXT:FOR G=8 TO 13:T(G)=2:N [CA]
EXT:FOR G=14 TO 20:T(G)=1:NEXT [CA]
25 DIM M(19,11) [D6]
26 FOR y=0 TO 11:READ a$:FOR x=0 TO 19:CALL 40000,VAL(MID$(a [8A]
$,x+1,1))*66+40210,x,y*2:M(X,Y)=VAL(MID$(a$,x+1,1)):NEXT x,y [8A]
:EVERY 13,1 GOSUB 58:X(9)=19:Y(9)=1:M(19,1)=137:CALL 40000,4 [8A]
0738,19,2:EVERY 75,2 GOSUB 66:M(10,7)=0:CALL 40000,40540,10, [8A]
14 [8A]
27 FOR G=1 TO 3:M(X(G),Y(G))=M(X(G),Y(G))+128:NEXT [73]
28 F=217:X=10:Y=7:S=6:WINDOW 1,20,25,25:PAPER 11:INK 11,3:CL [1C]
S [1C]
29 CALL 40000,S*66+40210,X,Y*2:WHILE F>0:OX=X:OY=Y:OS=S:WHIL [B4]
E (OX=X AND OY=Y) AND M(X,Y)<128 [B4]
30 EI:A$="":WHILE (INSTR("AZNM",A$)=0 OR A$="") AND M(X,Y)<1 [52]
28:A$=UPPER$(INKEY$):WEND:DI [52]
31 IF M(X,Y)=128 THEN 41 [E4]
32 DIR=INSTR("ZAMN",A$):X=X+DP(DIR):Y=Y+DPY(DIR):S=(INT(RND* [43]
255) AND 1)+6 [43]
33 IF Y=5 THEN IF X=-1 THEN X=19 ELSE IF X=20 AND Y=5 THEN X [0C]
=0 [0C]
34 IF M(X,Y)=9 THEN S=OS:X=OX:Y=OY [F1]
35 WEND [22]
36 CALL 40000,OS*66+40210,OX,OY*2:CALL 40000,S*66+40210,X,Y* [77]
2:IF M(X,Y)=5 THEN CALL 40000,40540,X,Y*2:SCORE=SCORE+1:F=F- [77]
1:M(X,Y)=0:SOUND T(X),25,5,15:SOUND T(X),75,5,15 [77]
37 IF M(X,Y) AND 128 THEN  41 [D3]
38 IF M(X,Y)<>0 THEN CALL 40000,M(X,Y)*66+40210,X,Y*2:FOR G= [A2]
50 TO 25 STEP -3:SOUND T(X),G,3,15:NEXT:F=F-25:SCORE=SCORE+2 [A2]
5:M(X,Y)=0:IF spon THEN |SAY,"Yum Yum inmy tum" [A2]
39 WEND [2A]
40 G=REMAIN(1):G=REMAIN(2):GOSUB 82:ERASE M,T:PAPER #7,0:FOR [3F]
 G=1 TO 50:PRINT#7,"↓
"!NEXT:GOTO 22 [3F]
41 G=REMAIN(1):G=REMAIN(2):PAPER #2,11:PAPER #1,11:WINDOW #1 [8D]
,1,20,1,9:LOCATE #1,1,1:WINDOW #2,1,20,9,25:LOCATE #2,1,25:F [8D]
OR G=1 TO 13:PRINT#1,"↑
";:PRINT#2,"↓
"!NEXT [8D]
42 WINDOW 1,20,1,25:PAPER 11:INK 11,3:PEN 1:A$="Score:"+STR$ [89]
(score):FOR h=1 TO LEN(a$):FOR g=2 TO 12:LOCATE 10-0.5*LEN(a [89]
$)+h,g:PRINT MID$(a$,h,1):"
 ";:NEXT g,h:FOR g=1 TO 1200:NEXT [89]
43 IF SCORE>HI THEN HI=SCORE [79]
44 ERASE T,M:GOTO 18 [9C]
45 DATA "99999999999999999999" [B6]
46 DATA "93555555599555555529" [6E]
47 DATA "95999599555599599959" [4A]
48 DATA "95955555955955555959" [78]
49 DATA "95959995955959995959" [1E]
50 DATA "55559555555555595555" [31]
```

```
51 DATA "99955555999955555999" [A3]
52 DATA "95559995555959995559" [5D]
53 DATA "95955555955555555959" [1B]
54 DATA "95999599955999599959" [E1]
55 DATA "92555555599555555549" [9A]
56 DATA "99999999999999999999" [B9]
57 SPEED KEY 7,7:PAPER 0:PEN 1:MODE 2:LIST [81]
58 M=M+1:IF M=4 THEN M=1 [6A]
59 IX=X(M):IY=Y(M):M(X(M),Y(M))=M(X(M),Y(M))-128:CALL 40000, [5F]
40738,x(M),y(M)*2 [5F]
60 A=0:B=0:IF RND>0.5 THEN 62 [84]
61 IF X>X(M) THEN A=1 ELSE IF X<X(M) THEN A=-1 [A8]
62 IF A=0 AND Y>Y(M) THEN B=1 ELSE IF Y<Y(M) AND A=0 THEN B= [1F]
-1 [1F]
63 C=M(X(M)+A,Y(M)+B) [91]
64 IF C<>0 AND C<>3 AND C<>5 THEN A=0:B=0:IF RND>0.5 THEN 61 [50]
65 X(M)=X(M)+A:Y(M)=Y(M)+B:CALL 40000,40738,X(M),Y(M)*2:SOUN [B1]
D T(X(M)),478,5,10:M(X(M),Y(M))=M(X(M),Y(M))+128:g=FRE(0):RE [B1]
TURN [B1]
66 OXM=X(9):OYM=Y(9):CALL 40000,40738,X(9),Y(9)*2:DI:M(X(9), [2A]
Y(9))=M(X(9),Y(9))-128 [2A]
67 IF X(9)>x THEN A=-1 ELSE A=1 [6A]
68 IF Y>Y(9) THEN B=1 ELSE B=-1 [7A]
69 X(9)=X(9)+A:Y(9)=Y(9)+B:IF x(9)=-1 OR x(9)=20 THEN x(9)=x [86]
(9)-a [86]
70 CALL 40000,40738,X(9),Y(9)*2:SOUND T(X(9)),956,5,15:SOUND [89]
 T(X(9)),956,5,10:M(X(9),Y(9))=M(X(9),Y(9))+128:EI:RETURN [89]
71 ' 14/3/89 - acculz [F9]
72 ' [FB]
73 a$="":ENV 1,14,-1,4:RESTORE 75:WHILE a$="":WHILE s<>2.77  [16]
AND a$="":a$=INKEY$:READ s:IF s<>2.77 AND s<>1 AND s<>3 AND  [16]
s<>2 THEN SOUND 1,s,15,13:SOUND 2,s/2,15,12:SOUND 4,s,5,13:S [16]
OUND 4,s+5,5,13:SOUND 4,s-5,5,12 ELSE IF s<>2.77 THEN ON s G [16]
OSUB 79,80,81 [16]
74 WEND:IF a$="" THEN RESTORE 75:GOSUB 82:s=0:RESTORE 75 [A4]
75 DATA 379,478,506,358,358,379,478,506,379,379,379,478,506, [FF]
358,358,319,319,379,379,379,478,506,358,358,379,478,506,506, [FF]
638,638,568,568,506,506,638,638,379,478,506,358,358,379,478, [FF]
506,379,379,379,478,506,358,358,319,319,379,379,379,478,506, [FF]
358,358,379,478 [FF]
76 DATA 506,506,638,638,568,568,506,506,638,638,379,478,506, [E6]
1,379,478,506,379,379,379,478,506,1,319,319,379,379,379,478, [E6]
506,1,379,478,506,506,638,638,568,568,506,506,638,638,379,47 [E6]
8,506,2,478,506,379,379,379,478,506,2,319,379,379,379,478,50 [E6]
6,2,478,506,506 [E6]
77 DATA 638,638,568,568,506,506,638,638,379,478,506,1,478,50 [12]
6,379,379,379,478,506,2,319,379,379,379,478,506,3,478,506,50 [12]
6,638,638,568,568,506,506,638,638,2.77 [12]
78 WEND:FOR g=1 TO 7:SOUND 4,153*RND*g,15,14,1:SOUND 1,158+( [33]
100*RND*g),15,14,1:SOUND 2,200,15,14,1:NEXT:FOR g=11 TO 4 ST [33]
EP -1:SOUND 4,153*RND*g,15,g,1:SOUND 1,158+(100*RND*g),15,g, [33]
1:SOUND 2,200,15,g,1:NEXT:RETURN [33]
79 SOUND 4,379,15,15,1:SOUND 1,358,15,15,1:SOUND 2,75,15,15, [8A]
1:RETURN [8A]
80 SOUND 4,379,15,15,1:SOUND 1,358,15,15,1:SOUND 2,75,15,15, [E6]
1:SOUND 4,478,15,15,1:SOUND 1,379,15,15,1:SOUND 2,100,15,15, [E6]
1:RETURN [E6]
81 SOUND 4,379,15,15,1:SOUND 1,358,15,15,1:SOUND 2,75,15,15, [89]
1:SOUND 4,478,15,15,1:SOUND 1,379,15,15,1:SOUND 2,100,15,15, [89]
1:SOUND 4,379,15,15,1:SOUND 1,358,15,15,1:SOUND 2,75,15,15,1 [89]
:RETURN [89]
82 RESTORE 75:FOR g=1 TO 10:READ s:SOUND 1,s,15,15:SOUND 2,s [4C]
/2,15,15:SOUND 4,s/3,15,15:NEXT:FOR g=15 TO 1 STEP -1:SOUND  [4C]
1,s,15,g:SOUND 2,s/2,15,g:SOUND 4,s/3,15,g:NEXT:FOR s=400 TO [4C]
 379 STEP -1:SOUND 1,s,6,15:SOUND 4,s,2,15:SOUND 4,s+5,2,14 [4C]
83 SOUND 2,0,6,5:NEXT:RETURN [B0]
```

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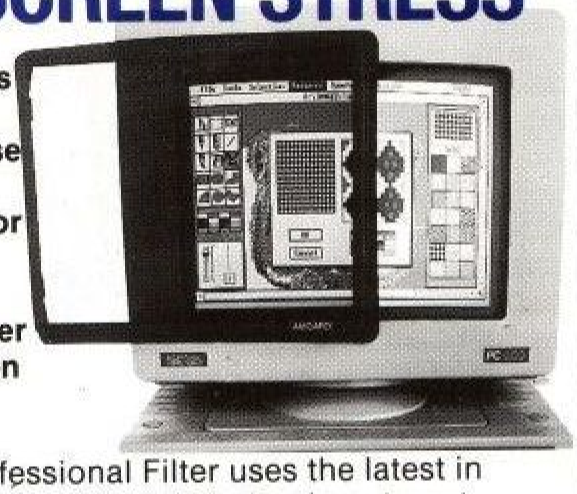
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The Comedy Of Errors

It's wat, not wil OK? What? That's what! Read on as the Doc explains all.

'Tis the season to be jolly, tra-la-la-la-la, la-la-la-lah. It's no good. Try as I might, I just cannot write a suitably festive introductory paragraph. The thing is, I'm sitting here typing away in mid October so I'm not really in the mood for mince pies. However, if you'd like to just imagine lots of tinsel and Christmas lights surrounding these two gift-wrapped pages, then that's fine by me.

The CPC-PC transfer debate continues with a letter from Ronald Hay:

Dear Doc Wilson, I refer to your Applications article in the October issue in which you briefly describe the transferring of data from a CPC to a PC.

This is a topic of considerable interest to me because I have used a CPC6128 for domestic and household business, but I have recently bought a PC. As you can readily realise, I have a lot of data on the CPC which I do not want to lose but would be far more convenient if they were all available on the PC.

I have phoned Siren Software (incidentally their telephone number has been changed to 061 724 7572) but they tell me that it is necessary to buy their 3.5" drive as well. This is just not on! So I am one who raises my hand in favour of a future hardware project for a less expensive option.

Aaagghhh! If one more person addresses me as Doc 'Wilson' ...well... quite honestly, that'll make three. It may only have been a one off typographical error to you, but I'm in danger of losing my identity! The name's Doc Watson, and I bet Sherlock Holmes didn't have any difficulty remembering it...



Anyway Mr Hay, back to the subject in hand. I think you may have misunderstood the role of Siren's PC transfer software. The 3.5" drive which they make is designed as an ordinary external disc drive. Its main advantages are that 3.5" discs can store around 800K of information, have only one side (no having to think in terms of which side files are on), and yet only cost about 50 pence. Now, it just so happens that the majority of modern PCs also use 3.5" discs, but store their information in a slightly different format (wouldn't you just know it?). To bridge this gap, Siren's PC transfer program will allow you to read/write PC format 3.5" disks, thus allowing the transfer of simple ASCii files.

Therefore, without a 3.5" disc drive, Siren's software isn't really much use. I suppose you could convert an ordinary 3" disc to PC format but, as no PCs use 3" discs, there is very little point. The alternative method is to connect directly the machines via a suitable cable. Fortunately, there is a common standard amongst computers for just such connections – the RS232 interface. Unfortunately, our CPCs don't have one! Amstrad do/did produce an RS232 interface which also allows easy connection to a modem. If your CPC/PC are reasonably close together then trying to get hold of such an interface is probably your best bet.

My idea for a hardware project was to design a simple RS232 interface and suitable communications software. This would be much cheaper (approx £10-£15) but would mean missing out on having a 800K disk drive plugged into your CPC. Before I dust down the soldering iron, it would be nice to hear other readers' views on the subject.

Leading You Astray

Printer problems are plaguing Mr Anthony Beecher from Gosport in Hants:

Being the proud owner of a CPC 6128, the time had come to upgrade to the use of a printer. A Seikosha SP2000 to be exact. However I cannot get the thing to work. Between the two manuals (Amstrad's & Seikosha's) I am still left baffled. HELP! PLEASE!

The cable I bought was marked 'Dixons Computer Cable' Amstrad Parallel Lead 049760 DCPT 3800. When connected to the computer, is the cable downward going?

Without a few more details, such as what the printer does or doesn't do, it is difficult to say exactly what might be wrong. Firstly, make sure that the cable you have purchased is designed to work with Amstrad CPCs and not Amstrad PCs (the sort that Dixons mostly sell). CPC printer leads should consist of a length of flat ribbon cable, with a 34-way edge connector on one end and a 36-way Centronics type plug on the other. The Centronics plug fits into the printer and can only be inserted one way around. As for the edge connector, examine its front face to see if there are any numbers marked on it eg. 1 to 34. If so, the row which starts with number 1 should be nearest the top of the computer.

I've frequently inserted this connector the wrong way around, with no lasting side-effects, so perhaps you should try both orientations. Make sure your printer is switched on and is on-line (the on-line light must be lit) before typing the following BASIC command.

PRINT#8, "Hello World!"

In case any typesetting gremlins creep into the above line, the symbol before the 8 is a hash sign (SHIFT +3).

If the printer still does not respond then make it perform a self-test. The standard way of doing this is to hold

down the linefeed (LF) button whilst turning on the printer's power, but consult the manual for specific instructions. Other things to check are that you have a fresh printer ribbon correctly inserted, and that the paper can flow freely. If your printer was brand new then there may well be some pieces of packaging to secure the print head during transit, or to prevent the rubber drive band from moving, – remove them! Also ensure that power is actually reaching the printer.

A vital sign of life is if the print head moves a short distance to the right, and then back to the left, whenever you switch it on. Lastly, because all printers use the same Centronics connectors (the printer port connectors on computers vary) see if you can get a friend (or Dixons) to connect your printer to a different computer. Good luck and let me know how you get on. If you still have problems then enclose some more details!

Artistic License

Budding artist Maurice Manning, who hails from Wandsworth, writes:

I am trying to find a way to load OCP Art Studio pictures into memory and then store and recall them when I need them like a slideshow. If possible I would like to be able to load at least 10 compressed pictures.

In December at the Shopper show I bought a 3" drive for my 464 and had these programs on my disc: ASM, ED, XSUB, SUBMIT. Could you please tell me how to use them?"

A small program was included with the original *Art Studio* (the one that only handles modes 1 & 2) to allow you to use its pictures from within BASIC. *The Advanced Art Studio* which was released about six months later (and included the 16 colour mode 0) did not come with this program unfortunately. I have it on good authority that the program can still be used to load 'Advanced' pictures, as long as they're not in mode 0.

This still leaves you with the problem of obtaining the program, which won't be of any use if you've used mode 0! I can't believe that the mode 0 format is particularly complex, so odds are that someone somewhere has managed to figure it out. If there are any Art Studio users who have experienced similar problems, or think they may be able to help Maurice in some way, then I'd be delighted to pass the information on.

These problems aside, storing 10 pictures in the computer's RAM is a tad optimistic. A standard screen will use 16K of space so there's only really room for one extra screen, two at a push. You could employ some sort of compression algorithm but this will only increase the number to three or four.

Type in the short program below:

```
10 for n=24550 to 24574:read a:poke n,a:next
20 view=24550:store=24559
30 data &f3,33,0,96,17,0,192,&18,8, &f3,33,0
40 data &c0,17,0,96, 0,0,1,0,64, &ed, &b0, &fb, &c9
```

After running it, type CALL STORE to store whatever is on the screen. When you wish to retrieve it, type CALL VIEW.

Seeing as you own a disc drive, my advice would be to store the pictures on disc and load them in one at a time. A single side of a disc can hold around 11 pictures. There will be a delay of a few seconds while each picture loads, but the whole idea of a slideshow is to give people time to view each image!

To save the contents of the screen to disc, type:

SAVE "filename",b,&c000,&4000

To load an image, use:

LOAD "filename"

making sure that you load pictures in the same mode as when you saved them.

Now onto the second half of your letter. The programs you describe are a set of utilities for use with CP/M 2.2 – a disc operating system that comes with CPC disc drives. CP/M is rather outdated and of limited use but can be interesting nevertheless. Here's a breakdown of what the utilities do:

ASM – 8080 Assembler.
ED – A simple context editor.
DUMP – Hexadecimal file dump utility.
XSUB – Transient program batch processing.
SUBMIT – Console Command Mode batch processing.

I can't think for one moment what possible use you will find for these antiquated curiosities, but the gory details can be located in SOFT159 – "A Guide to CP/M".

Punched Cards?!

Dr Neil H. Ray reminisces about the good old days of computing, when men were men, women were women, and GEC Mercury computers with ECC86 thermionic valves were GEC Mercury computers with ECC86 thermionic valves...

I have been involved in the game of computing since 1942 – YES 1942!! – my first computer was a GEC Mercury which ran on thermionic valves and had a room to itself with cooling fans that consumed a great deal more power than the computer – incidentally, the machine had all of 8 Kilobytes of RAM contained in no less than 12,000 ECC 86's (you won't remember an ECC 86, it's a glass envelope containing a double diode that consumed several watts – and by the way, that is why we now have a surplus of electrical power generation capacity; the CEGB calculated our present requirements on the basis of computers run on thermionic valves – Yes, it's true – look it up!!) and anyway I have been operating and programming computers of various kinds since 1942. I have seen a lot of changes since then, not all for the better, although I have to admit that the Amstrad PC 2286/40 that I am using to write this letter is aeons in advance of anything I have handled before and has, believe it or not, thirty times as much RAM and three hundred times as much disc storage as my last machine.

As a matter of pure curiosity, how many of your readers have actually programmed a computer by manually punching cards or reels of punched tape? I still have several reels of punched tape that have some of my earliest programs on them, but I can't let anyone see them because the data is still top secret.

Well there we go, and to think that I viewed my old ZX81 as being primitive! Nice to know you're enjoying your new computer Dr Ray, but surely it has more than 240K? I think it's only fair to point out that ACU is devoted to Amstrad CPC/Plus machines, while APC covers computers such as yours.

Oh yes, before I go, here's that address for Nine Tiles Software – as promised last month – Beech House, 25 Greenside, Waterbeach, Cambridgeshire, CB5 9HW. Tel 0223 862125. Prices given on request.

So, I suppose it's a case of ho, ho, ho, deck the halls with boughs of holly, Christmas pudding etc., until next month. Letters, queries, general correspondence, plus war time memories, are as welcome as ever, and should be sent to the usual address. Seeing as I'm still grappling with October, perhaps someone could let me know what sort of Christmas I can expect?

Perhaps I'll try out one of those forecast programs on my trusty Arnold.

Getting the message

Mr B gives some useful advice on cost cutting via the modems

Are you one of those people who dislike writing letters? Are you someone who can't bear to search out an envelope, write an address on it, and have never gone to the trouble of keeping stamps in the house? If so, then electronic mail is for you. Using electronic mail, you can compose, post, and receive all your mail (well most of it), all at your CPC's keyboard.

This involves some means of sending and receiving messages over a phone line and modem. There are several ways of doing this. Obviously the most direct method is for you to phone up the person you want to communicate with, tell your modems to establish a link, and upload or download files to each other. This can sometimes be an expensive method since, if the person you're in contact with lives at the other end of the country, you're paying the cost of a long distance phone call. It can also be, as anyone who has tried this method can tell you, a lot of hassle.

Other methods are less direct in nature. Essentially, all of these methods involve you somehow giving your message to a 'node' (technically a junction; point) on a network, and that node transfers your message electronically to another node, and so on, until your message reaches its destination. In practice a node is usually a computer and modem setup (e.g. another Bulletin Board), and the electronic transfer is done by phone. The number of transfers needed may be none, if the addressee's BBS is that on which you posted the message, or it could be five and upwards if the addressee's BBS is on another continent. There are many different ways of using electronic mail, and the main differences between them are who they're available for, how flexible the transfer system is, and how much they cost to use.

So what exactly is an electronic mail system or network? One way of looking at it is that an email system is any one BBS which can receive and send mail to other users, often users of other BBSs. The system could be a commercial one, very large, with access by subscription, such as GreenNet or CIX; it could be run by academic institutions, being available to students etc., or it could be a free- for-all network or any group of these that agree to transfer mail between themselves. For example, GreenNet can transfer mail to and from GlasNet (in the USSR), so a user of GreenNet can direct their message to a person using this system. A network can also be a group of systems that have a similar organisation, for example FidoNet.

FidoNet (also called Matrix Mail) is not a commercial electronic mail system/network but is run by enthusiasts on their Bulletin Boards. FidoNet consists of a number of nodes (each a separate Bulletin Board), and when sending your message, you specify the actual node that you wish your message to be sent to. This provides a fairly prompt and direct service. Since phoning up other nodes around the country costs the Sysop more than a small amount of money, you may be asked to pay him or her for each message (around about 5 or 10p). Another system (of networking) is Echomail, and I'll mention that later on.



The part of a typical amateur BBS that deals with messages on the system is given the unlikely name of 'message section' or something similar. Most message sections are split into areas, each area is for messages to do with a different subject. These can range from ST, Amiga, and PC computers (wretch, spit and disgust!), through Satellite TV, to Sales and Wants and adverts for new Bulletin Boards. So, choose a message area that interests you (presumably not least the Amstrad area!). You can browse through the messages in an area, or just read those addressed to yourself. Similarly, you can post messages to others by name, or you can send them to 'All', in which case you make clear that you are interested in hearing from anyone.

You may notice that several, if not most of the message areas are referred to as Echomail areas. I mentioned these briefly last month, but to recap, these are areas that are common to many amateur BBSs around the UK and in certain cases around the world. A message posted in an echomail area is 'echoed' to other BBSs, during the night. In this way your message should reach its addressee in a few days (see diagram), although the user has no control over where the message is sent. Indeed, I am told that international echomail (e.g, to Australia or Germany), reaches its destination in about a week if all is working well! This obviously doesn't cost you more than the phone call to your nearest echomail BBs, and many of you will have one within your local phone rates area, so for Mr G. Public it can prove to be the cheapest method of communicating with others without leaving your chair (Comfy, Swivel, with or without arms, stool, or otherwise!)

The only problem with using a message section is that you can spend quite a long time on the phone reading through messages in different areas, and then composing and typ-

A = 300/300 (V21) B = 1200/1200 (V22) C = 2400/2400 (V22bis) D = 1200/75 (V23) E = V32 (one of the 9600bps standards) F = HST (another of the 9600bps standards). All entries are N-8-1, and are operative 24 hours a day unless otherwise specified as Mon-Fri hours, then Sat/Sun hours.

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ABBEY	Wimborne	0202 873911	ABCD	M-F: 2100-0630 S/S: 24 Hrs
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BABBS	Felixstowe	0394 276306	ABCD	
3 BELOW FORUM	Thamesmead	081 312 2123	ABCD	
APPLIED SYSTEMS	Wimbledn	081 545 6489	ABCD	
ACADEMICS BBS	Solihull	021 705 2906	ABCF	
APRICOT TECH 1	Edgbaston	021 456 2401	ABCF	
A&M LOGICAL	Leyland	0772 623167	ABCD	M-F: 1700-0900 S/S: 1700-0900
BREAKTHROUGH	Liverpool	051 734 5817	ABCD	
ALCEHMIST	Tetbury Glos	0666 504597	ABCF	
BATHTUB	Bath	0225 480103	ABCD	
ADVANCE OPUS	Hull	0482 586285	ABCD	
ALTERNATIVE SOLUT'N	Shfd	0742 325232	ABCEF	
ABBS	Bangor NI	0247 465385	ABCD	M-F: 2200-1800 S/S: 220-1800
ALAN	Ballingry Fife	0592 860313	ABCD	M-F: 2130-0800 S/S: 2130-0800
ALTERNATE REALITY	Mold	0352 856626	ABCD	
DESERT	Chester	0244 550332	ABCEF	

ing in your replies. This is, of course, expensive! But there is a solution at hand, in the form of 'CRR' by Paul Martin. CRR is an offline mail reader. You dial up the BBS, and give it the command to download all your mail (in a compressed batch form). You then hang up and load up the mail, (again a compressed batch), and hey presto, it's all been done without much time online. What I tend to do, is phone up my local BBS, upload my messages and replies, and then download my new mail. Except there's a problem. As with everything else in the computing world, there's several different types of offline-mail readers, each with its own file formats! CRR is only compatible with mail packets from an XRS-Door offline-mail system (used to be called QMX, RAX, RAQMX, or RQSeX). Look out for these words, or if in doubt ask the Sysop. If the BBS you use doesn't support it then why not lobby the Sysop to install it?

I mentioned compression in the previous paragraph. Obviously compression is an extremely useful device for communications of any kind, where there are constraints of some sort. For example, time, speed, or money. All of these are relevant over a phone line, and it is also common practice for Bulletin Boards to keep most of their files stored in a compressed form. So how do you decompress the files once you've downloaded them? Well, you need to have a copy of an unarchiver such as UNARC, NULU151, or UNZIP. These should be stored on the BBS uncompressed so you just need to download them and they'll be ready to use. Some BBSs also tell you which unarchiver to use for which compressed file format. To set the record straight UNARC is for .ARC files, NULU for .LBR files, and UNZIP for .ZIP files.

Okay, that about wraps it up for me. This month's BBS list starts on non-Amstrad specific boards. If anybody wants to contact me about anything at all then send me a message in the Amstrad, Comms, or BBS echomail area.

PS. Oops! I got Aspect's phone number wrong last month. It should have been 061 792 0260!

ECHOMAIL

The following is an example of how the PenPal echo carried by Scottish Opus finds its way from here to the rest of the world. The routing of echos are not permanently fixed and quite often change. The caller is unaware of this though since messages still get through even though they might being going via a different route.

Other Local BBSs ◄◄◄ Alba Maximus (Glasgow)
▼
▼
OL BBSs ◄◄◄ Central BBS (Birmingham)
▼
▼
OL BBSs ◄◄◄ BBS 09 (Portsmouth) ►►►► North Yorks BBS (Knaresborough)
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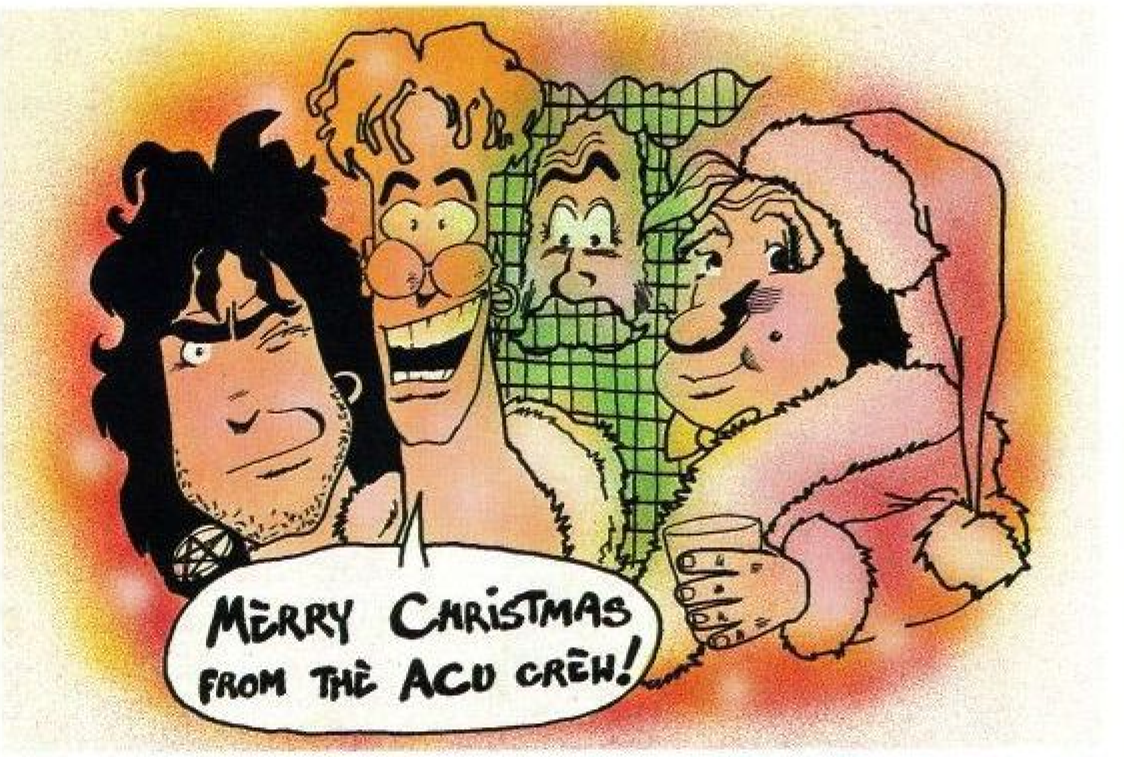
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Before we launch ourselves off into the excitement of our brand new disc and tape service, all of the boys and girls at ACU would like to take this opportunity of wishing you all a very Merry Christmas and an exceedingly Happy New Year.

Despite the continuing rumours concerning the future of the CPC, we at ACU know that whatever happens, our beloved Arnold will continue to provide pleasure to countless thousands of owners, being the versatile little beast that it is.

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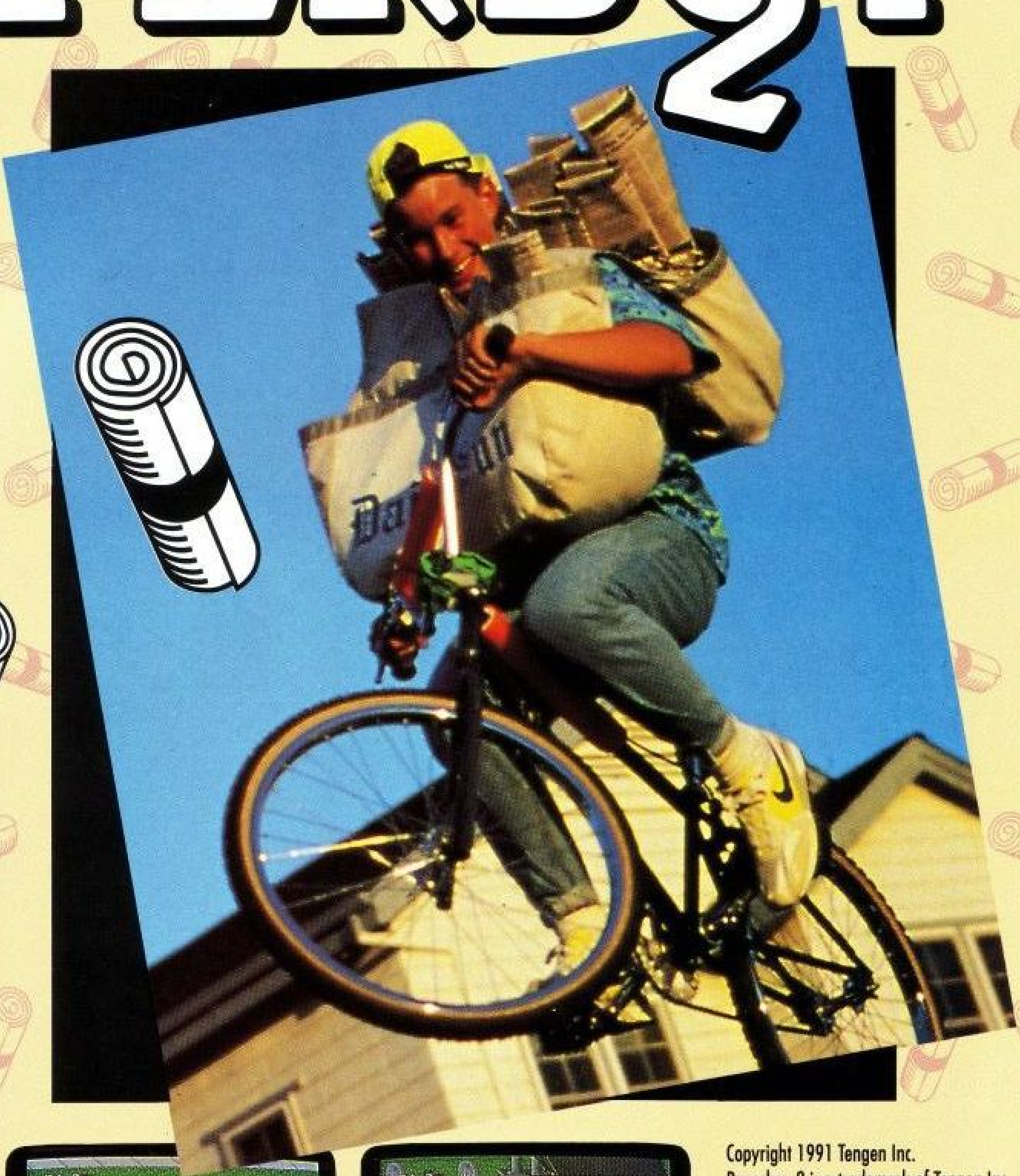
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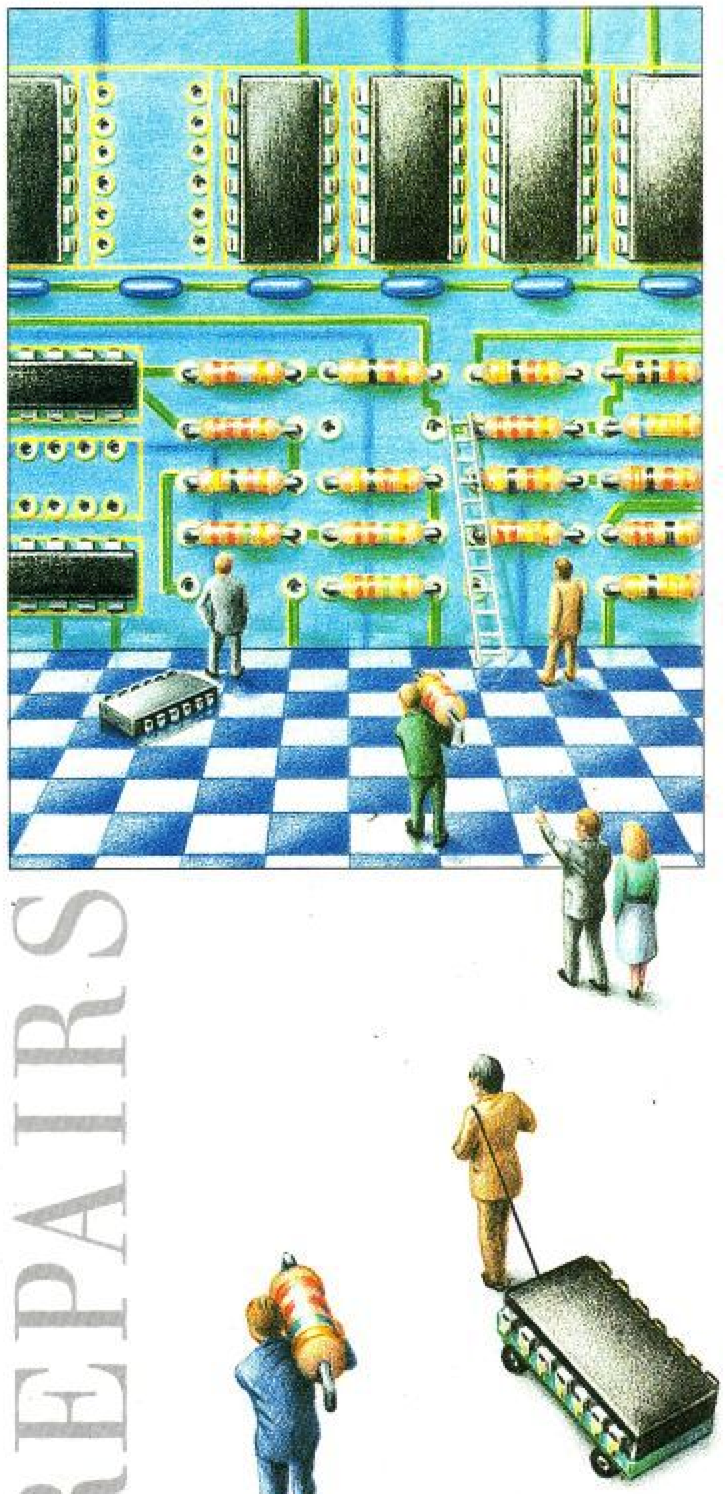




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